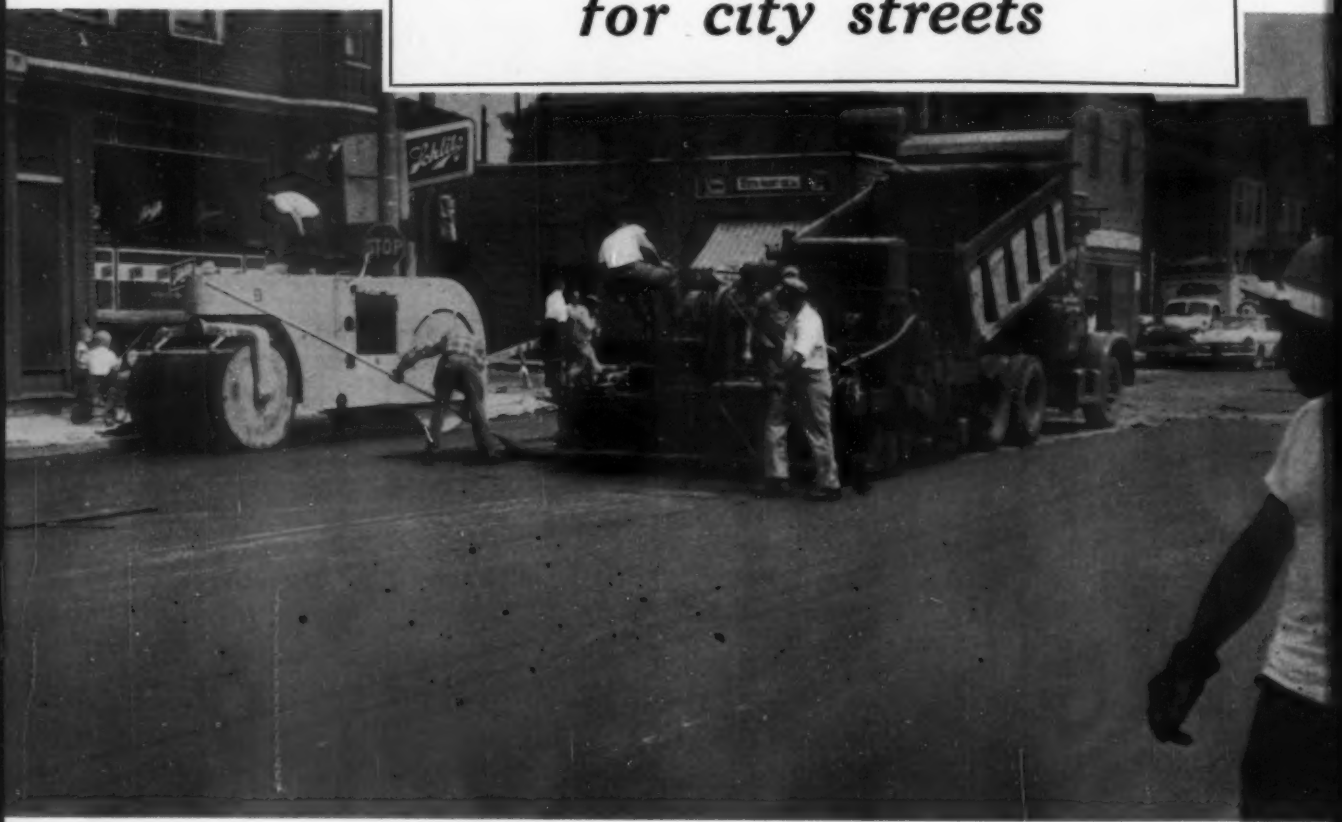
JUNE 1958
The
American City

Why Asphalt is the **preferred pavement** *for city streets*

One of many Milwaukee, Wisc., streets which have been paved with resilient, rugged Texaco Sheet Asphalt by the Badger Construction Company of Milwaukee.



For these reasons

• Durability—Asphalt's ability to absorb punishing impact year after year has been demonstrated on the most heavily traveled thoroughfares of such cities of Philadelphia, Milwaukee and Houston.

• Speedily laid—Thanks to the rapidity with which modern machines lay Asphalt and the fact that no curing period is necessary, the pavement is ready for use in a fraction of the time required for rigid paving.

• Velvet-smooth riding quality—Because of its resilience and freedom from joints, Asphalt paving is unequalled for driving ease and comfort.

• Low maintenance cost—Seven of 10 State Highway Departments, which supplied pavement maintenance costs to the Oklahoma Turnpike Authority, reported lower costs for Asphalt.

• Other advantages—Snow and ice melt faster on Asphalt paving . . . It is immune to ice control salts . . . The freedom from glare and sharp visibility of traffic lines on Asphalt's dark surface contribute to safe driving.

Helpful information for the city official on all types of Asphalt street construction is available in two free Texaco booklets. Our nearest office will be glad to send you copies.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 1 Minneapolis 3 Philadelphia 2 Richmond 11

TEXACO

REG. T. M.

TEXACO ASPHALT

JUNE 1958

The American City

A Buttenheim Publication

Contents

Administration and Government

Our Municipal Notebook **17, 22, 25**
How to Select and Use Consulting Services **99**
Municipal Public Relations—The City Tells Its Story **164**
Miami's New Metropolitan Charter **179**

Finance and Taxation
Business Machines and Systems

Tax Assessing: A Growing Profession **97**
Punched Tape Boosts Accounting Efficiency **160**
Budget-Priced Property Maps **169**
Pay-As-You-Drive Tax to Relieve Downtown Congestion **173**

Street Construction and Maintenance

Versatile Equipment—A Money Making Proposition **11**
Rome, N. Y., Revives Street Construction Activities **11**
Who Pays for Street Resurfacing? **91**
Philadelphia Bridge Receives Skid-Proof Treatment **112**
We Have Solved Our Street Patching Problems **149**

Lighting

Analysis of Street Lighting Versus Accidents **121**
Fluorescent-Lighted Cloverleaf **121**
It's Light Reflected That Saves Lives **123**
Phoenix Relighted **125**
You Can Study Out Your Own Street Lighting System **125**
Fluorescent Lamps In a Deep Freeze **126**
Good Utility Promotion **126**

Sewerage and Sewage Purification

Lining Extends Life of Failing Sewer **8**
Erosion Protection with Plastic Film **8**
Sewage Plant Paint Problems **85**
Sutherlin, Ore., Hurdles Financial Blocks **95**
Proposed Water and Sewage Construction—Part II **141**

Purchasing

Cincinnati Adds 300 Manuals to Its 9,000 Automatics **118**
Purchasing News **199**

COVER PHOTO

In Covina, Calif., annual fire prevention visits by firemen in full dress uniform, illustrated on the cover, helped to lower fire losses from $2.50 per capita in 1952 to 69 cents in 1957 while population tripled. This year citizens were asked to demolish their backyard incinerators that are now prohibited and to report backyard swimming pools (as emergency water supplies). Voluntary remarks of citizens reported to city officials often furnish valuable information. For story see page 157.

Water Supply and Treatment

Monumental Water Tank for Tyler, Texas **15**
"Evaporator" Water Spurs Town Growth **15**
Water Plant Replaced At Havre de Grace, Md. **88**
Hidden Pumping Stations **101**
Ample Storage Compensates for Limited Supply **114**
Proposed Water and Sewage Construction—Part II **141**
How to Start a Water Metering Program Properly **151**

Public Safety

First of New York City's New Fire Trucks **13**
CAA Buys Approach Lights **13**
Latest Two-way Radio for San Diego **13**
Warm Community Relations From Fire Prevention Visits **157**

Traffic Control

10,000 Parking Meters Inspected Daily **129**
Street Marking in Green Bay, Wis. **130**
Denver Remounts Traffic Signals for Visibility **133**
Need Better Public Transit **133**
Buffalo's Ramps Make Big Money **135**
It Doesn't Cost Much to Cut Accidents Now **135**
Shaves Out Traffic Lines **135**

Parks and Recreation

A Touch of Color **27**
Marinas Pay Off Municipally **27**
Park Programs Need Long-Range Plans **27**

Planning, Zoning and Housing

Connecticut Cities Plan Housing For Elderly **94**
Airport Runways to Become Streets **98**
Altoona, Pa., Renewal Program "Bold but Practical" **108**
Chicago Checks Urban Blight **109**
Many People Will Move from Slums **111**

Refuse Collection and Disposal

Municipal Incineration **18**
Auto Litterbags Prove Effective **18**
Bury Garbage According to Plan **92**

Air Pollution

Air Pollution Control Notes **146**

Miscellaneous

Nuclear Powered Municipal Electric Plant **90**
Steam-Heat Savings **102**
Subsurface Drainage **104**
Give the Public the Red Carpet Treatment **118**

Departments

Mailbag **7**
Bond Market **17**
Free Catalogs **28**
Zoning Notes **187**
Legal Notes **189**
City Managers **190**
Conventions—When and Where **193**
Municipal and Civic Publications **195**
About People **216**

Index to Advertisers 229

THIS YEAR

THE BELL SYSTEM IS PUTTING MORE THAN TWO BILLION DOLLARS IN NEW FACILITIES

We are doing this because we are confident that growing America will need, buy, and use more telephone service tomorrow than today.

We are doing it to improve our service further and make the telephone even more convenient. This we are sure will stimulate more use.

These 1958 expenditures are higher than the average in the post-war years—and close to the highest in any year.

A stimulus to the economy of the whole country

Our goal, as I have said, is to serve you better than ever. In addition, the way this money flows out to other businesses stimulates the economy of the whole country.

Wherever there are new telephone buildings going up, or jobs of maintenance, there is work for local builders, carpenters, plumbers, electricians, painters and many others.

Our spending means business too for thousands of other companies and workers in those companies. Last year the Bell System through Western Electric, its manufacturing and purchasing unit, bought from 33,000 firms throughout the country. Nearly nine out of ten of these are small businesses, each with fewer than 500 employees. This year again we expect to buy about a billion dollars worth of goods and services from other industries.

To go ahead with our 1958 construction, we in the Bell System have raised nearly a billion dollars of new capital in the last six months. Obviously, investors will continue to entrust their savings to us only if they can expect reasonable earnings on the money they risk.

Good service at reasonable profit keeps the road to progress open

So telephone progress—and the advantage to all that comes from our pushing ahead—begins with our faith that Americans want good and improving service at prices which allow a fair profit.

This is the way of life which in our country has stimulated invention, nourished enterprise, created jobs, raised living standards, and built our national strength. As long as we live by this principle, the future of the telephone is almost limitless in new possibilities for service to you.

Fr Kappel

FREDERICK R. KAPPEL, PRESIDENT
AMERICAN TELEPHONE AND TELEGRAPH COMPANY

The American City Highlights

IN this month's issue, ***Ames, Iowa*** highlights the benefits of coordinated city planning, engineering and administration. ("Bury that Refuse According to a Plan," p. 92. We always have been impressed to see how municipal services work to support each other, rather than interfere with, or pay no attention to, other departments. Some years ago, when ***Lawrence, Kans.*** was wrestling with the problem of refuse collection, the officials wound up by assigning the service to the water department. Nearby ***Wichita*** gave its first traffic engineer the responsibility of sewer maintenance. The borough engineer of ***Essex Fells, N. J.*** also is responsible for water, sewage, streets, parks, refuse collection, and, in addition, is assistant fire chief.

Notable also this month is the heart-warming story from ***Little Rock, Ark.***, a city that has received world-wide notoriety that it certainly doesn't deserve. Little Rock has one of the most enlightened and wholesome urban renewal programs in the nation, possibly the entire world. The problem of moving people out of slums is always vexing. Little Rock's Knox Banner tells how (page 111).

Of course there are many more stories in this issue that you will find practical and helpful. How to start a water metering program (p. 151) — you would be surprised how many cities still use flat rates; how to build a pumping station that you can't see (p. 101); how a little city can rebuild its streets in big-city style and at rock-bottom prices (p. 149); how to select and use consulting services (p. 99). One that we thought was set for June slipped away from us—how to analyze your city's water rates. We have it nailed down definitely for appearance in our July issue.

The stories lined up for future issues constitute one of the most exciting parts of our work. We may not get them all in July, but on tap are offerings such as these:

- How ***Pensacola, Fla.*** provides parks in its new residential areas.
- How ***Tooele, Utah*** built a swimming pool and became famous.
- How ***Prescott, Ariz.*** built a $125,000 golf course at no cost to the city.
- How ***Lakewood, N. J.*** built a small-city municipal garage.
- How the little city of ***Easton, Md.*** was able to acquire a new modern regional shopping center, squarely in its downtown area.
- What you should do about utility cuts in pavements.
- How to resurface your streets using the new, low-cost asphalt slurry.

And then we have a most enlightening story about the make-up of a city councilman, based on a survey-in-depth of nearly 200 councilmen in 92 California cities. It carefully documents what many of us have known all along—that the councilman serves unselfishly, and frequently at personal loss. The caliber of councilmen is high and improving.

From the long viewpoint we have under way another water-rate study, a continuation of those popular rate surveys initiated more than 25 years ago by the late Theodore Reed Kendall, who served for many years as engineering editor of our magazine. This one, we believe, will be somewhat more comprehensive, and thus more revealing in its analysis of water works financing, which is, of course, the backbone of this vital municipal service.

THE AMERICAN CITY

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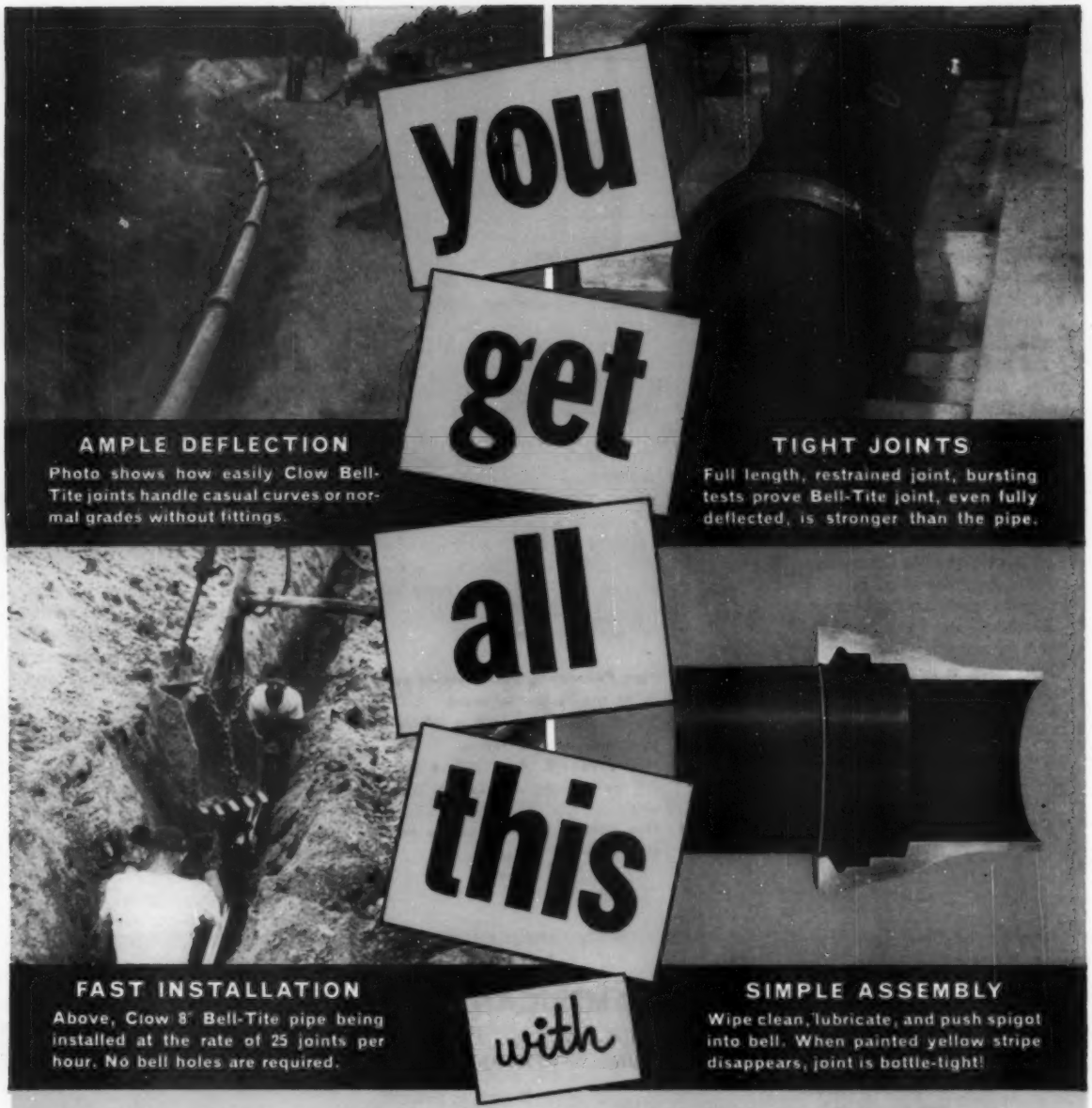
Editorial



AMPLE DEFLECTION

Photo shows how easily Clow Bell-Tite joints handle casual curves or normal grades without fittings.

TIGHT JOINTS

Full length, restrained joint, bursting tests prove Bell-Tite joint, even fully deflected, is stronger than the pipe.

FAST INSTALLATION

Above, Clow 8' Bell-Tite pipe being installed at the rate of 25 joints per hour. No bell holes are required.

SIMPLE ASSEMBLY

Wipe clean, lubricate, and push spigot into bell. When painted yellow stripe disappears, joint is bottle-tight!

CLOW BELL-TITE JOINT*

cast iron pipe

Here's the new time-saving, labor-saving, money-saving way to lay watermain. A single gasket, rubber seal joint that requires no bolts or follower glands to make a tight, dependable joint. Listed by the Underwriters' Laboratories, Inc., for water working pressures up to 350 psi, the pipe itself meets all applicable provisions of AWWA, ASA, and Federal Specifications. Complete details gladly rushed to you on request.

*Patent applied for.

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Editorial

Did You Ever Wonder Why — —

. . . so many prominent people who ought to know better ask ridiculously superficial questions like, "Can our cities survive?" Of course cities can survive and have survived for centuries, even when they appear to be utterly destroyed. In our young country, many cities have lived and progressed under four flags. Cities face difficult problems in these dynamic days, but they are in no danger of failing to survive. To the contrary, they are calmly solving these problems; by doing so, they strengthen and give a leadership to our nation. To quote the New York State Citizens Council, "A better America will be built in better American communities."

* * *

. . . cities have so much trouble finding a location for their incinerators? Probably the principal reason is their ruggedness, and ability to operate without an outright breakdown when overloaded. Incinerators that are operated within their rated capacities rarely create problems for their neighbors. But too many cities overload these plants, slowly and unobtrusively creating a festering, odorous, rat-inhabited eyesore that the average citizen looks on with repugnance. If a city's sanitary code were to state that the incinerator would accept refuse only to its rated capacity, these unhappy conditions would largely disappear.

Another reason is the insistence on the part of most designers that the plants must have towering, monumental stacks, calling the attention of people for miles around that garbage is being burned. These ungracious-looking spires serve only two purposes: First, they provide natural draft—which induced-draft fans can supply; and second, they scatter the fly ash over a wide area, hopefully expecting that, by doing so, they will spread it so lightly that no one will notice it. Far better, in our opinion, would be the use of scrubbers to see that the fly ash never escapes, and short stacks that escape public notice.

* * *

. . . we don't give more emphasis to the upgrading influence that a good street resurfacing brings a neighborhood? One highly qualified city engineer once told us that he tried to keep his eye open for those parts of his city where deterioration appeared to be on the way. Then he would schedule his street programs accordingly, and invariably would watch the people in the areas spruce up their yards, paint and repair their homes, and do all the little things that show a community that has respect for itself and its neighbors.

* * *

. . . more people don't realize, as Consulting Engineer Louis Howson recently pointed out, that in much of our country, water shortage problems are not so much failure of supply as poor distribution? We hope and are confident that other water-short cities may follow the bold but simple lead of Galesburg, Ill., which pushed a big, 30-mile pipeline direct to the Mississippi and quit worrying about the ups and downs of its wells.

Mail Bag

. . . First News

. . . on proposed municipal projects on which the municipality has not yet selected a consulting engineer:

Survey and master plan for water system at Greenville, Ill., reported May 5 by City Manager Arthur S. Johnson.

Sewage treatment plant and sewer lines at Suttenberg, Iowa, reported May 6 by City Manager John Beckman.

Water distribution piping and sewer lines at Village of Shorewood, Wis., reported May 12 by Village Clerk-Treasurer John L. Jones.

Re: First News

I think your idea to have in THE AMERICAN CITY Magazine a list of projects where the consulting engineer has not yet been appointed is commendable. This should help municipal officials who are looking for consulting engineers able to design or supervise their projects. At the same time it is an excellent service to the engineering firms seeking such work.

ROBERT W. COWDEN, *City Manager*
Redding, Calif.

Safety Violations

As I was paging through the May 1958 issue of THE AMERICAN CITY, I became interested in the lead article, "Galesburg Goes 30 Miles to Get Plenty of Water." (See p. 105.) It is a good story, but I shuddered when I looked at the three pictures on pages 106-7 which depict the laying of the 36-inch concrete pressure pipe. Personnel safety is not one of the features of any of these photographs. I appreciate, as much as you do, that you do not control construction projects and, therefore, are pretty much limited to using pictures that are available. For example, when we prepared the *AWWA Safety Manual* we had to stage the pictures to get the ones we wanted.

Safety programs in the water industry are growing by leaps and bounds. However, there is still much laxity in the industry. Thus, if we as publishers could pick and choose our pictures more expeditiously, to show reasonable safety precautions for the construction personnel, I think that we would be doing our industry a great favor.

Elroy Spitzer, your engineering

(Continued on page 185)

Sewerage & Sewage Purification

Lining Extends Life of Failing Sewer

An internal check of this 42-inch lining of a concrete sewer shows it to be in good condition after 12 years of service.

Right:
A new outlet was constructed in 1956. Note high velocity, up to 15 feet per second, of the waste spilling from the pipe.

TWELVE years ago, the North Shore Sanitary District in Waukegan, Ill. lined a failing 48-inch-diameter concrete sewer with 42-inch Armco asbestos-bonded coated and paved pipe. Today, despite adverse conditions, the interior of the sewer is still in good shape.

Construction of a sewage treatment plant some 30 years ago required that a section of gully or ravine be filled to provide more usable area. Approximately 300 feet of sewer was installed to carry the ravine storm water and local industrial wastes for discharge into Lake Michigan.

This structure served adequately for many years, but in 1942 inspections showed that industrial wastes were causing deterioration of the structure. By 1945 the invert was completely gone and part of the erosion structure failed.

Fill ranging from 15 to 20 feet made it impractical to replace the conduit by the open-cut method, so the sanitary district decided to line the old structure by threading 42-inch diameter corrugated pipe in the old line. The lining pipe was fitted with internal expanding couplings and angles were welded to the pipe at the third points to provide runners for sliding the pipe and keeping it centered in the old structure. The space between the two pipes was then grouted.

Inspections made since 1946 indicate that the lining is performing satisfactorily. During inspection fumes were so pungent that entrance into an unventilated manhole was impossible without the use of gas masks. Representative samplings of the effluent showed that from 1946 to 1956 pH values ranged from 0.6 to 10.9 and temperatures varied from 51 to 96 degrees.

To make room for secondary treatment added in 1956, the sanitary district filled in more of the ravine and extended the sewer about 500 feet to a new outlet at the lake shore by using 48-inch asbestos-bonded sewer pipe.

Erosion Protection with Plastic Film

SEVERAL months ago, Seattle, Wash. city engineers used 20,000 square feet of plastic film to control erosion caused by heavy rains. The site was a large cave-in, about 200 feet long and 100 feet deep, produced by a deep sewer main break. Heavy rains increased the danger, resulting in the evacuation of all houses surrounding the site.

The film, made from Bakelite polyethylene resins by Visking Company, came in rolls, each roll containing a sheet 100 feet long and 32 feet wide. Workmen used boards and timbers to weight the top edge of the rolls of film and then draped the rest over the side, where the film channeled rain water to the bottom of the pit. Employees of a chemical firm hired by the city applied a "drying" compound to the lower portions of the cave-in to bring it under control.

Plastic film prevents rain water from causing erosion and undercutting. Cost of 20,000 square feet of film came to $300.

THE NEW MODEL "800" SEWERKING—LONG DISTANCE OPERATION—IDEAL FOR THREADING BUCKETS

WHY CONTINUE TO LITERALLY THROW MONEY DOWN THE SEWER WITH 25 YEAR OLD TYPE "PUSH 'N PULL" RODDING? A MODERN, ALL-POWER SEWERKING WILL AMAZE YOU WITH ITS FAST AUTOMATIC OPERATION . . . SAFE ONE-MAN CONTROL . . . CLEANING UP TO 24 INCH LINES . . . MANHOLE TO MANHOLE . . . THOUSANDS OF FEET PER DAY! LET US TELL YOU HOW CITIES LARGE AND SMALL HAVE REDUCED COSTS 50% TO 75% WITH THIS PROVEN, UP-TO-DATE WAY TO CLEAN SEWERS. MAIL COUPON TODAY FOR DETAILS.

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STREET_____

SIGNED BY_____

TITLE_____ DEPT._____

A-CASA

Look at
Highland Park's No. 977...

BUSY AT BOTH ENDS!

The sanitary landfill area in the Borough of Highland Park, N. J., covers about 20 acres and a lot of it is shale. It used to take air hammers to loosen the shale for trenching. This meant time and extra money. Today a Caterpillar No. 977 Traxcavator* simply pulls a CAT* No. 6 Ripper through the shale, making it possible for the Traxcavator to build the trench quickly and inexpensively. Then the No. 977 dumps and compacts the garbage in the trench. On this job the No. 977 is replacing a tractor and at last reports was handling what was formerly eight hours' work in one.

The No. 977 is one of three Cat-built Traxcavators with bucket capacities from 1 to 2¼ cu. yd. You saw how versatile the Traxcavator is with a ripper attached, but only an actual demonstration on your own project can show you the amazing versatility of this machine. Ask your Caterpillar Dealer especially about the brand-new side dump bucket which only the Traxcavator offers. Note this, too: all Traxcavator models are available with a heavy-duty undercarriage for those tougher jobs that put extra strain on your equipment. But get the whole story firsthand right now. A Traxcavator can save you tax dollars—pick up your phone, call your Caterpillar Dealer and find out how.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

YOUR TAXPAYERS GET
THEIR MONEY'S WORTH WITH
CAT-BUILT MACHINES

Street Construction & Maintenance

Versatile Equipment— A Money-Making Proposition

THE Highway and Water Departments of Wilmington, Mass. reduce costs by sharing the same multiple-use equipment. This versatile unit is a Trojan 154 tractor shovel with 2-yard bucket and a Pippin backhoe attachment. The Highway Department owns it and rents it to the Water Department.

The Highway Department uses the tractor shovel to load such diverse materials as ledge, boulders, loam, sand and bank-run gravel. When blasting the ledge, the Trojan also handles the 1,700-pound blasting mat. Ice control and snow removal operations also provide opportunity for the machine to prove its worth.

Water main construction is a one-machine operation with the new equipment—and provides the money-making opportunity. Prior to the purchase of the tractor shovel, the Water Department hired a small front-end loader with backhoe attachment from a private contractor at a cost of $6 per hour. Hiring equipment is still the practice, but this time it's the Highway Department's equipment that is used and the money earned is earmarked specifically for the purchase of needed equipment. This procedure has saved the town well over $4,000 in the past two years.

One machine, rented from the Wilmington Highway Department by the water utility, excavates, lays pipe, and backfills.

On a recent job the Trojan-Pippin team excavated a 600-foot trench, 4 feet deep and 3 feet wide, in less than 24 working hours. The same equipment then laid the 6-inch water main, backfilled the trench, and compacted the top of the fill.

The popularity of the machine can be judged by its use—almost 9 hours a day, 5 days a week—and sometimes 6 days a week.

Rome, N. Y. Revives Street Construction Activities

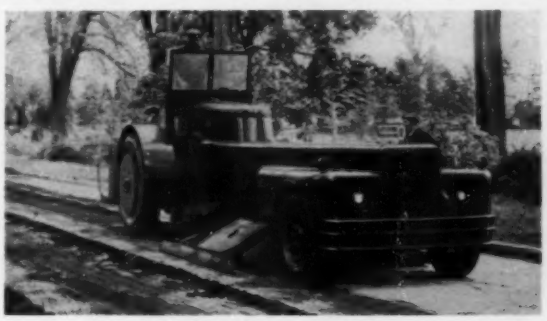
UP UNTIL 1931, Rome, N. Y. levied special paving assessments against property owners benefitted by the construction of permanent-type pavement. These policies were relaxed during the depression years. Then the war years followed and by that time the memory of special assessment financing had faded. By 1955 the city had obtained about 20 miles of non-permanent-type streets, and maintenance became costly. The administration felt it was unfair to charge all property taxpayers for this work.

In 1955, City Manager Robert H. McManus and City Engineer Stephen H. Zingerline made a complete inventory of accrued liability for street projects and found 177 blocks of substandard streets. They then drafted a basic policy to bring these streets up to standard.

The basic elements of this program, adopted by the Common Council, are as follows:

1. Streets meeting the specifications of a basic residential street would be maintained and improved at the expense of all property taxpayers.
2. Streets not meeting the specifications would be maintained in passable condition, and would receive one further oil and stone treatment if they had previously had such treatment.
3. In improving substandard streets to meet basic permanent-type street specifications, the abutting property owners would pay for pavements and curbs, the city the cost of storm sewers and intersections.
4. In case of heavily traveled streets, the city would pay the additional cost of heavier design and wider pavements. Certain improvements relating to these streets could be ordered by the city.

In 1956, Rome completed the most substantial paving program in its history, with 1957 a close second. These programs are summarized as follows:



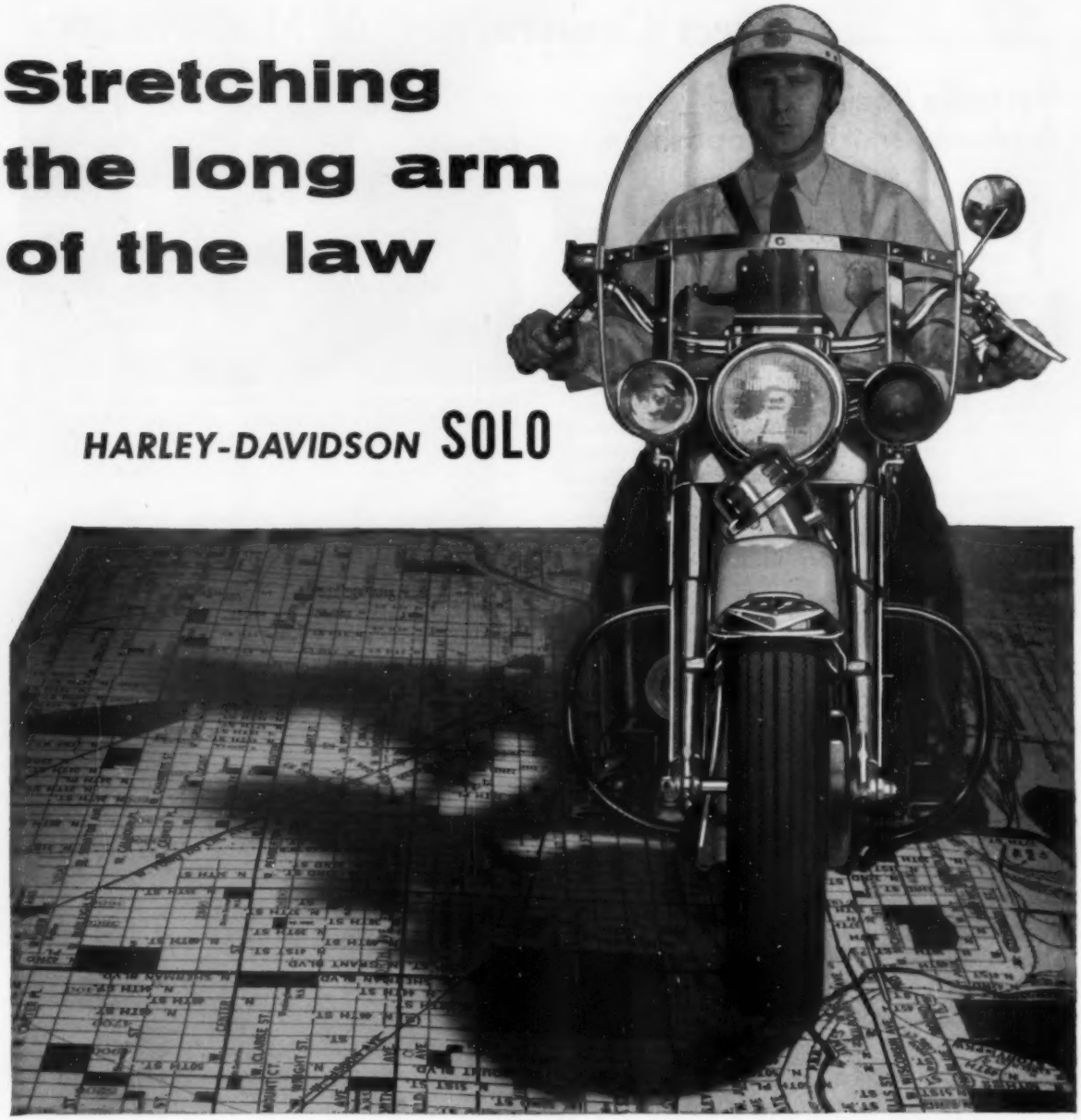
Rome removed blacktop and resurfaced 3.3 miles of work in two years. Here a Littleford heater-planer removes old surface.

	1956	1957
Surface treatment	6.9 miles	6.0 miles
Remove blacktop and resurface	1.6 miles	1.7 miles
New construction and reconstruction with curbs	2.0 miles	2.3 miles
	10.5 miles	10.0 miles
Total project cost	$440,000	$410,000

By limiting the type of maintenance which would henceforth be given to substandard streets, more money became available for permanent-type construction. The city also made special efforts to encourage property owners to petition for the improvement of substandard streets.

Stretching the long arm of the law

HARLEY-DAVIDSON SOLO



No area is out of reach

Communities are *spreading out* in all directions and at the same time *spreading thin* your available personnel. The answer to this "growing" problem is fleet flexibility . . . Solo flexibility that enables each officer to cover more territory. The man on a Solo gets where he is needed in the shortest possible time even thru congested traffic areas. And remember, "Seeing is behaving." The Solo-mounted officer's ability to see and be seen prevents many violations and accidents.

The 1958 Solo is the finest ever. Cushioned riding comfort with cat-like surefootedness makes the new Solo the most efficient two-wheeler in police history. New swinging-arm rear suspension—spring loaded seat post — Hydra-Glide front fork — give on-the-job comfort that keeps officers fresh and alert at all times.

See your dealer or write HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wisconsin for free illustrated literature.

HARLEY-DAVIDSON police motorcycles

Public Safety

First of New York City's New Fire Trucks

These are the first 20 of 77 new Mack 750-gpm pumping engines of cab-forward canopy design, each equipped with a portable deluge gun and 375-gallon booster tank. They are powered with Mack's Thermodyne diesel engine. (Below) Director Bert Nelson of Mack's Fire Apparatus Division (second from left) and Harry Irwin (extreme right), chief supervising engineer for the New York Fire Department are running tests on the trucks at Wards Island. Shown in the background is the famous Hellgate Bridge.

CAA Buys Approach Lights

FLASHING streaks of light will guide pilots toward the centerline of the runway for 2,000 feet when airport approach lights are equipped with sequence flashing lights ordered by the Civil Aeronautics Administration. A contract to furnish 31 complete condenser discharge flashing light systems has been awarded to Sylvania Electric Products Inc., for $253,377.50.

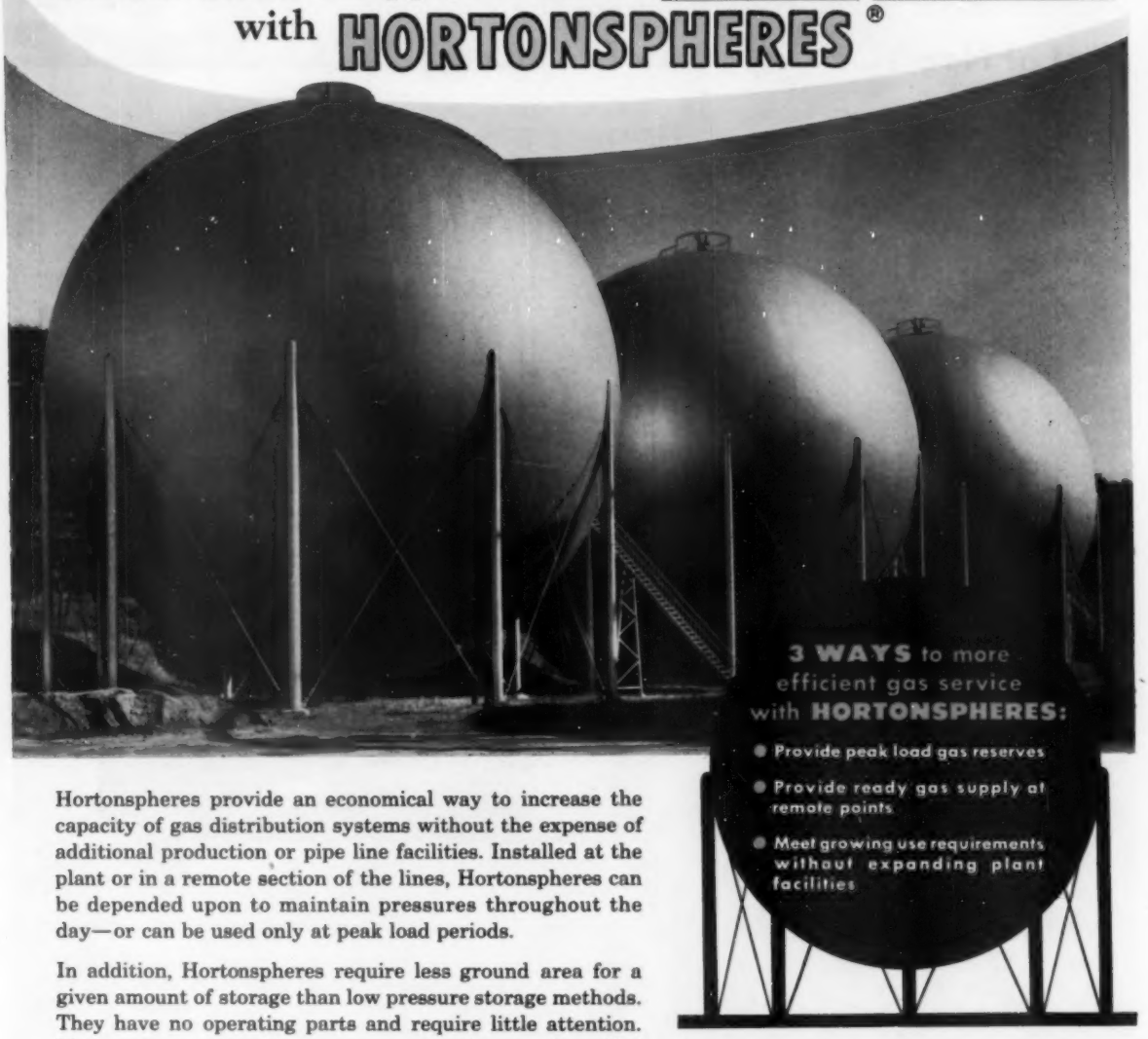
A full sequence flasher system consists of 20 clear lights of 10,000 effective beam candlepower, each directed toward the incoming plane and placed at 100-foot intervals along the outer 2,000 feet of the approach light system. These lights flash in sequence from the end of the approach lights toward the runway threshold two times each second to give the impression of a "flaming arrow" pointing along the centerline of the runway. A monitoring service in the control towers show traffic controllers at all times if the system is working.

Latest Two-Way Radio For San Diego

MODERNIZATION by the San Diego, Calif. Electrical Division includes 40 units assigned to fire trucks and 26 other types of emergency vehicles. AM radio equipment, formerly used by the fire department, will be used to create a combination AM-FM system for the police. The police department also has received new units. More than 100 of 156 radios ordered from General Electric have 20-watt audio amplifiers built-in for public address purposes.

San Diego's Electrical Division, Department of Public Works: Superintendent A. H. Keith and E. Simon, electrical engineer.

Smooth out Gas Supply Problems Efficiently, Economically with HORTONSPHERES®


3 WAYS to more efficient gas service with HORTONSPHERES:
Provide peak load gas reserves
Provide ready gas supply at remote points
Meet growing use requirements without expanding plant facilities

Hortonspheres provide an economical way to increase the capacity of gas distribution systems without the expense of additional production or pipe line facilities. Installed at the plant or in a remote section of the lines, Hortonspheres can be depended upon to maintain pressures throughout the day—or can be used only at peak load periods.

In addition, Hortonspheres require less ground area for a given amount of storage than low pressure storage methods. They have no operating parts and require little attention. They present a pleasing appearance and the smooth, *welded steel* structure is easy to paint and maintain.

The Hortonsphere is *another* example of how CB&I's *craftsmanship in steel* is helping modern communities to meet their growth problems, gracefully . . . at a minimum of cost as compared to the efficiency delivered. Write your nearest CB&I office for further information.

New, tougher steels with higher yield strength and continuing improvements by CB&I in design, testing, fabricating, and erection techniques and equipment have considerably extended the volume of gas that can now be stored at high pressure. Write for details.

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
New Orleans • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, GREENVILLE, PA. and at NEW CASTLE, DELAWARE.
In Canada: HORTON STEEL WORKS LTD., TORONTO, ONTARIO

Three 76-ft. diameter Hortonspheres serve growing gas requirements at Meriden, Connecticut for the Connecticut Power and Light Company.

M4PC

Water Supply & Treatment

Monumental Water Tank for Tyler, Texas

TYLER, Texas recently acquired a new land-mark in the form of a 2,000,000-gallon elevated water tank of unusual design. The prestressed-concrete tank rests on top of a 160-foot high fluted concrete tower. The tank overflow is 195 feet above ground elevation.

The city awarded a construction contract for the structure to Whittle Contracting Co. in August 1957. The Preload Company, Inc., of New York designed the tank and the company's wire-winding Merry-Go-Round machine was used to prestress the tank wall. Wisenbaker, Fix and Associates are the consulting engineers for the city. Construction was under the direction of Clarence P. Stewart, city manager; J. P. Ferrill, city engineer; and Buck Campbell, water superintendent.

The 2,000,000-gallon elevated tank in Tyler, Texas. A wire-winding machine was used to prestress the tank wall.

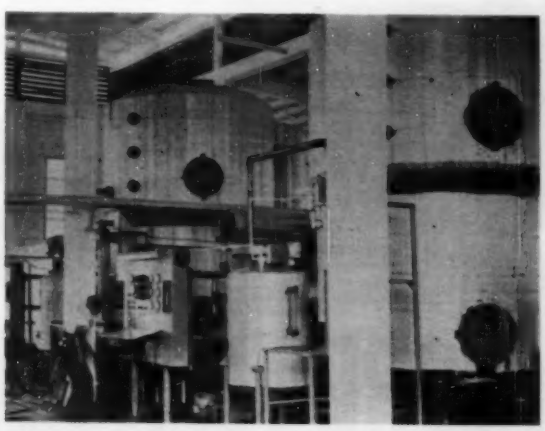
"Evaporator" Water Spurs Town Growth

A GUARANTEED supply of fresh water resulted in the growth of Salinas, Ecuador, from 2,500 to 6,000 inhabitants. Formerly, the town relied on rain water from a collecting basin, it now draws salt water from the sea that virtually surrounds the entire community.

Faced with a dwindling fresh water supply brought about by a reduction in rainfall over the past few years, the Salinas Town Board installed two Cleaver-Brooks vapor compression evaporators each with a 24-hour capacity of 50,000 gallons. The resulting growth in population convinced the Town Board that the future of Salinas depended upon a guaranteed supply of fresh water. Consequently, they ordered two more evaporators from the Waukesha, Wis. firm. These will double the present capacity.

A quarter-mile-long concrete canal and settling basin conveys sea water to the evaporators. The fresh water is then pumped to a 250,000-gallon storage tank. From the tank it flows by gravity to the homes. Some home delivery is made by truck carrying 5- and 50-gallon drums.

A pump house, located at the end of this canal, supplies it with sea water. The canal leads to the evaporator plant, which is about a quarter mile from the sea.



These two evaporators guarantee a 100,000 gallon daily supply of water to the town of Salinas, Ecuador. Two more units, now on order, will double plant capacity.

"I'm the guy who drove the 58 Ford around the world...

"...that's why I'd put my money on FORD for fleet use!

"Driving the 58 Ford around the world was the roughest, toughest test that's ever been given *any* automobile. We were on the go constantly. We really *had* to punish that Ford—we had a tough schedule and had to 'pour it on' to make it. Not only was the timetable a rough one, but the roads we traveled over were the worst we could find . . . some were nothing more than pot-holed trails. Name any driving condition—steep mountain grades, blistering desert sands, steaming, soggy jungles – Ford mastered them all!

"In all the time we were gone, and with all the pounding we dished out, there wasn't a single mechanical failure. All we ever replaced were tires and spark plugs. When we got back to the United States the engine was still running like a clock and the body was tight as a drum. Knowing the merciless beating that we had to give that Ford, and the way it stood up, I'd say it's in a class by itself for performance, for economy, for stamina and *build*."

Ford builds for keeps! . . . *you* can prove it any day in the week at your Ford Dealer's or write: Ford Division, Fleet Sales Department, P.O. Box 658, Dearborn, Michigan.

* * *

Danny Eames is an independent test-driver and one of America's most experienced automotive authorities. The Ford he drove over many of the world's roughest roads was a conventional 1958 model. The purpose of the test was to prove that no car in its price class matches Ford for built-in quality, durability and performance. And Ford proved it—to a degree unmatched by any stock automobile . . . before or since!

Our Municipal Notebook

Congress Offers Cities Help As Antirecession Measure

IF ANY substantial portion of the current Congressional antirecession bills become law, cities can again start training their fiscal sights on Washington, instead of their state capitals.

Grants for sewage construction look as though they will increase. Currently four amendments have been offered to the Federal Water Pollution Control Act that would boost the size of these federal grants. Currently, the maximum grant is $250,000. Most of these bills would double this figure. One would permit $250,000 for each of several communities joining together to build a single plant.

At least 18 bills plan to re-create the old Public Works Administration. The bills apparently interpret public works to include chiefly water and sewer facilities and would allow $90 of federal assistance for every $10 of state or local funds available.

At least three bills are aimed at expanding the public facility loan program of the Community Facilities Administration of the Housing and Home Finance Agency. They would authorize this agency to purchase the securities and obligations of, or to make loans to, state and local public bodies to finance a wide range of projects that would include streets, sidewalks, bridges, parking lots, airports and other transportation facilities; larks; hospitals; incinerators, water, sewage, and other sanitary facilities; utilities; police, fire protection; schools, libraries, offices and other public buildings. The bills authorize loans with maturities to 50 years, places a rate ceiling of approximately 3½%, and permits postponing payments of principal or interest for up to 2 years.

St. Paul, Minn. Plans Downtown Revitalizing

ST. PAUL, MINN. is currently laying plans for the revitalization of its downtown area, under the guidance of Victor Gruen Associates, architectural and planning firm with headquarters in Los Angeles.

The Gruen organization, which attracted national attention with its plan for the revitalization of Fort Worth, Texas, is presently working on schematic land use studies for the central business district of St. Paul.

Cities Plan $6 Billion in Municipal Construction

More than 600 cities are planning major public improvements costing over $6 billion in the next five years, a survey for the 1958 Municipal Year Book shows.

The projects include:

479 drainage or sewerage improvements
430 street improvements
353 water supply and distribution developments
311 public building projects
241 off-street parking garages
189 street lighting extensions.

About 200 cities also plan miscellaneous developments, such as marinas, parks and recreation improvements, airports, and gas and electric utility construction.

Nine hundred municipalities with more than 10,000 population reported their planning activities to the International City Managers' Association, publisher of the Year Book.

Don Herrick Retires As Head of APWA

WHEN Donald F. Herrick retires as executive director of the American Public Works Association this month, it will mark the end of his 12 years of progressive leadership at the helm of that Association.

During this time, he effected a threefold increase in organization membership. And under his guidance, the annually sponsored APWA Public Works and Equipment Show has become the celebrated public works event of the year.

Succeeding Mr. Herrick is Robert Bugher, presently assistant director of the Association and a member of the APWA staff since 1953. Mr. Bugher has developed a number of important programs of the Association. He laid the ground work for the 15 local chapters formed since 1953. He also carried on the staff work of setting up the basic organizational procedures of the APWA Research Foundation.

Both Mr. Bugher and the Association will have the wide experience and technical and administrative ability of Mr. Herrick to draw on, for he will be available to the Association on an advisory basis.

Special Programs on Air Pollution Planned

AIR POLLUTION will be the subject of a 2-week summer study program at Massachusetts Institute of Technology, Cambridge, Mass., August 11-22. The program will include studies of aerol technology and air cleaning; air analysis; toxicology and public health; the meteorological problem; legislative and regulatory acts.

A national conference to study the growing problem of air pollution in urban areas is scheduled to be held in Washington, D. C. later this fall. Dr. Leroy E. Burney, Surgeon General, Public Health Service, expects the conference to discuss legal, medical and industrial problems in air pollution control.

REPRESENTATIVE MUNICIPAL BOND ISSUES

April 5, 1958 to May 7, 1958

Date of Issue			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost or Basis (Per Cent)*
4/ 8/58	Shreveport, La.	$2,000,000	Street Improvement	11⅓	2.96430?(net)
		750,000	Water and Sewer Revenue	13¾	2.79 (net)
4/ 9/58	Chicago, Ill.	7,450,000	Subway	6⅓	2.464 (net)
		1,000,000	Sewer	2	2.464 (net)
		450,000	Community Conservation	3	2.464 (net)
		4,000,000	Electric Street Lighting	9⅓	2.464 (net)
4/21/58	Orient, S. D.	6,000	Sewer Lagoon	3⅓	3.76 (net)
4/24/58	Bedford Heights, Ohio	375,000	Sewage Disposal Works	10⅓	3.55
4/28/58	Brooklyn, Ohio	110,000	Park Improvement	5⅓	2.64
		22,000	Service Department Equipment	3⅓	2.64
4/29/58	Nora Springs, Iowa	10,000	Water Works Extension	5⅓	2.93
5/ 6/58	Cook County, Ill.	25,000,000	Expressway, Series C	7⅓	2.5406 (net)

Compiled from THE BOND BUYER

Refuse Collection & Disposal

Municipal Incineration

THE federal Public Health Service recently announced publication of a 24-page booklet entitled, *Municipal Incinerator Design, A Survey of Engineering Practices.** This booklet, prepared by The Solid Wastes Engineering Section, Committee on Sanitary Engineering Research, American Society of Civil Engineers, is based on an analysis of data on the newest or best plants currently operating in 102 cities in 28 states and the District of Columbia.

The discussion includes trends in construction, responsibility for plant construction, types of material accepted, design data on grates, loading factors and furnace, flue chamber and stack ratios. Population and number of cities reporting are:

Population Group	Number of Cities
1,000,000 and over	5
500,000-1,000,000	10
100,000-500,000	25
50,000-100,000	16
25,000- 50,000	17
5,000- 25,000	29
Total	102

Plant Data

With respect to age, 11% of the plants were built prior to 1931, 34% were constructed prior to 1946, and 55% were placed into operation within the past 10 years. Thirteen communities reported abandonment of their plants since 1951, and of these, eight adopted sanitary landfill methods. Ten of the 13 cities had less than 50,000 population.

Another item of interest pertains to the responsibility for plant engineering. Of 88 cities reporting on this question, 54 stated consulting engineers had primary responsibility; 14 cities had their engineering staffs do the design; manufacturers did the design in 17 cases; and in three cases the responsibility was shared jointly by the manufacturer and the city engineering staff. Of 79 cities reporting on their satisfaction of the plant, 10 were not satisfied. Seven of these 10 plants were constructed without the services of a consulting engineer.

Design Trends

Figures covering type of grates used in 92 of the reporting plants demonstrate the complete change in practice with respect to hand stoking, with only one such plant being constructed during the past seven years. Reliance on automatic or semiautomatic grates is now apparently a universally accepted practice. Atlanta, Ga. and Louisville, Ky. operate rotary kiln-type furnaces.

Grate loadings vary considerably not only between plants with different types of grates but between those having similar designs. Grate loadings reported varied from 25 to 120 pounds per square foot per hour. These plants were all constructed between 1949-1956. Ratings for the various types of grates used varied as follows:

Grate Type	Range in Pounds Per Square Foot Per Hour
Automatic or Semiautomatic Sloped Grates	44-83
Rotary Circular Type	25-150
Hand-stoked	15-111

Furnace, combustion chamber and flue volume also varied substantially, but was not so pronounced as in grate design factors. Data on the "median" plants follows:

Material Burned	Furnace Volume Cubic Feet per Ton of Rated Capacity	Ratio of Combustion Chamber Volume to Furnace Volume	Ratio of Flue Volume to Furnace Volume
Garbage and Combustible Rubbish	9.6	2.8	..
Refuse	10.0	0.6	0.6
Combustible Rubbish	11.6	1.3	6.9

For furnaces using automatic or semiautomatic sloped grates, the "median" values of furnace volume design factors ranged from 13.6 to 15.0 cubic foot per ton of rated capacity for garbage and combustible rubbish, mixed refuse, and combustible rubbish.

* The report, published by the U. S. Department of Health, Education, and Welfare, Public Health Service, Washington, D. C., in limited quantity for a special purpose, is not available for general distribution.

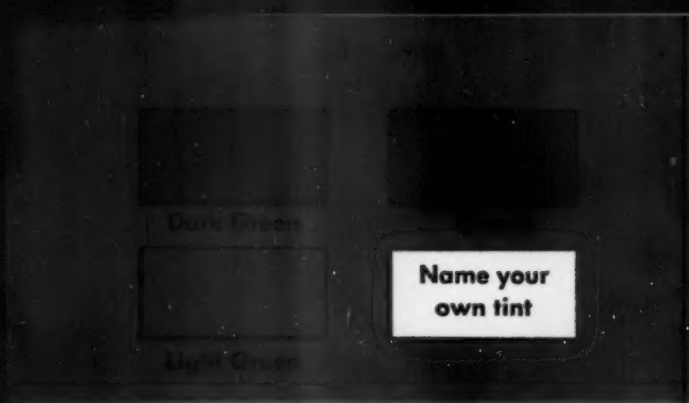
Auto Litterbags Prove Effective

A TEXAS test shows that automobile litterbags are effective in combating trash tossing. During a recent four-month trial period the Texas Highway Department distributed 50,000 litterbags, furnished by the Texas Motel Association to motorists at various entry points on the state's border. Later a poll of some 200 state maintenance foremen showed that very few of the bags were discarded along the roadsides, indicating that many of them were being used, emptied, and reused. Seventy per cent of the foremen thought the idea of carrying a litterbag or other portable container in the car for travel trash has merit, and suggested a statewide educational program to boost their use.

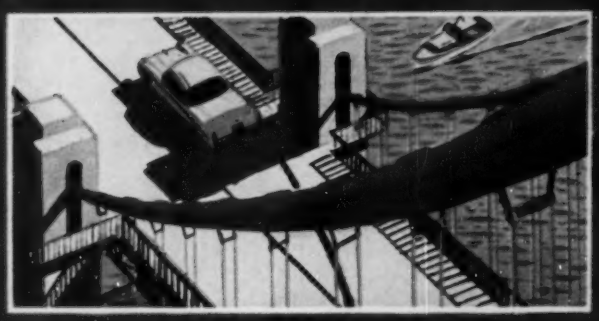
In California, the Parky auto litterbag is contributing greatly towards reducing highway litter and cutting down on the more than $5,000,000 annual bill for removing motorists' trash from state highways.

John Touhy, executive secretary, Southern California Service Stations Association, Los Angeles, Calif., and W. N. Gray, director, Bay Cities Petroleum Association, Palo Alto, Calif., have joined forces and are urging all members of both organizations to purchase the Parky auto litterbags for free distribution to their motorist customers through their more than 3,500 gasoline service stations throughout California. More than 300,000 Parky auto litterbags are being distributed. For information on the Parky auto litterbag, write to the Tidy Kangaroo, Room 305, City Hall, Los Angeles, Calif.

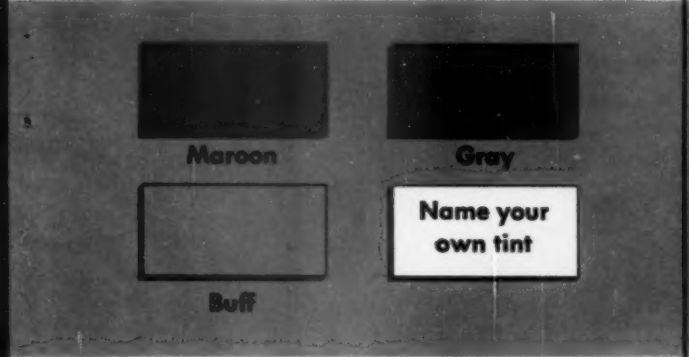
For more facts, turn page



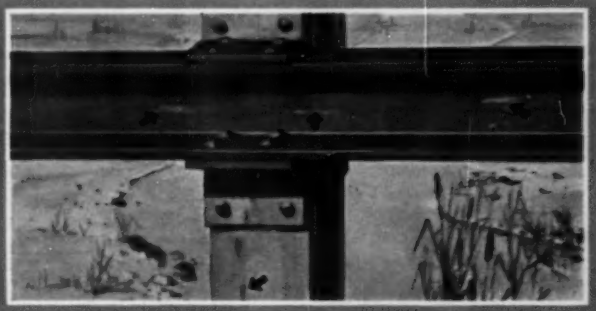
Never before weather-resisting tinted *finishes* that are also rust inhibitive . . .



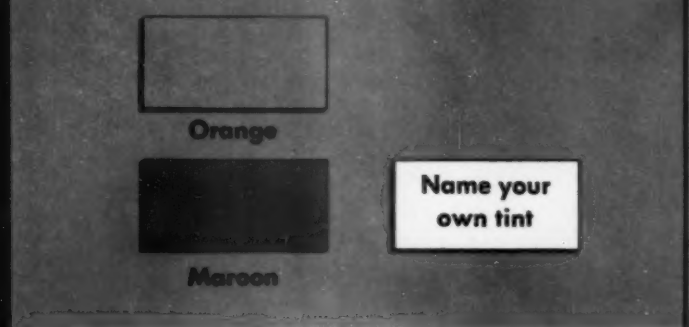
Now you can give steel structures distinctive color . . . or decorative color . . . along with greater durability than ever



Never before tinted *intermediates* that are *both* weather resistant and rust inhibitive . . .



Now you can specify intermediate colors in sharp contrast and aid visual inspection for "holidays"



Never before anti-corrosive *primers* that are also tintable and weather resistant.

Now you can eliminate on-the-job mix-ups by using structurals shop-primed in *coded* M50 pigment colors

Proof M50 pigment Defense in Depth paints deliver color opportunities entirely beyond those of ordinary anti-corrosive paints

Wide color choice has never before been available in *all* coats of anti-corrosive specification paint systems. Now *M50* basic lead silico chromate pigment* gives you an entirely new color specification freedom . . . in primers as well as intermediates and finishes . . . along with all-coat rust inhibition, all-coat weather resistance. Some of the opportunities this presents are suggested above. You'll think of others.

M50 Defense in Depth

. . . And never before such *durable* color. See next page for proof . . .

*Registered trademark of

National Lead Company

General Offices: 111 Broadway, New York 6, N. Y.

For more facts, turn page

A. No visible discoloration from atmospheric conditions

Contrast areas marked **A** in photo (top at right) of paint test panels exposed 18 months. You can see *M50* pigment paint is free of discoloration caused by atmospheric conditions.

B. No objectionable whitening from normal chalking

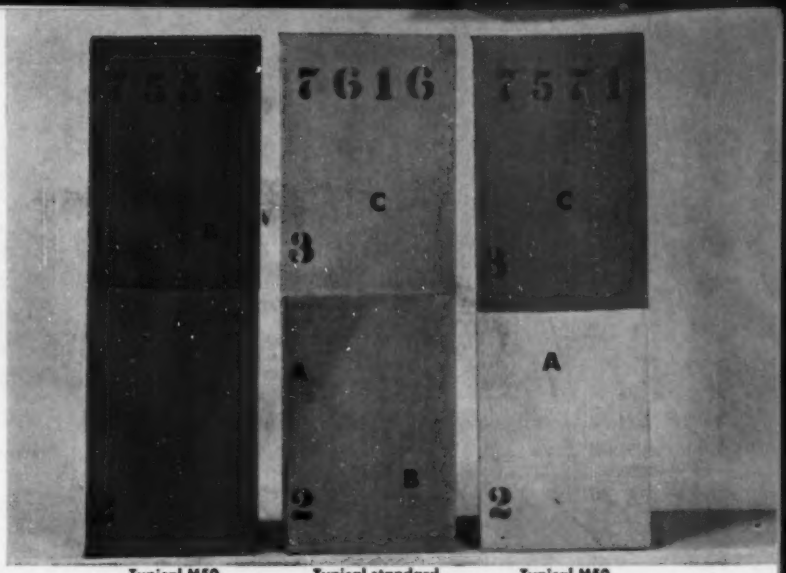
Now compare areas marked **B**. Notice the brightness of color in the *M50* pigment paint. A finger drawn across this paint shows no mark from rubbed off chalk.

C. No noticeable leaching from water action

Look closely at areas marked **C**. Can you see where the non-*M50* paint has been leached by rain water to expose vertical brushmarks in the undercoat? Insoluble *M50* pigment prevents this film failure.

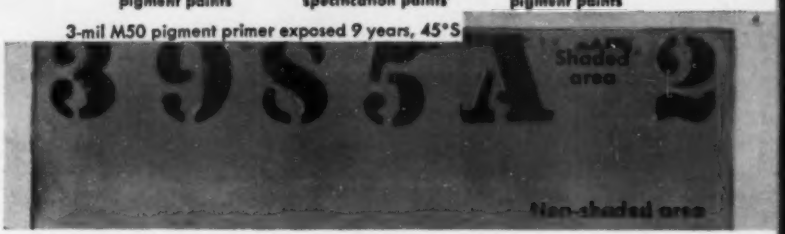
D. No excessive fading from light action

This time examine the close-up (bottom photo at right) of a 9-year *M50* pigment primer exposure test. Contrast between the area shaded by a wooden panel holder and the non-shaded area shows excellent tint retention conferred by *M50* pigment.



Typical M50 pigment paints | Typical standard specification paints | Typical M50 pigment paints

3-mil M50 pigment primer exposed 9 years, 45°S



M50 pigment paint tints stay brighter, retain hue longer ... they're protected against all 4 causes of color loss

No need to amplify what the illustrations on this and the preceding page show. Plainly, *M50** pigment Defense in Depth paints give you more color freedom, more color durability than ever before available in metal protection paints. More rust inhibition, more weather resistance, too. In every coat!

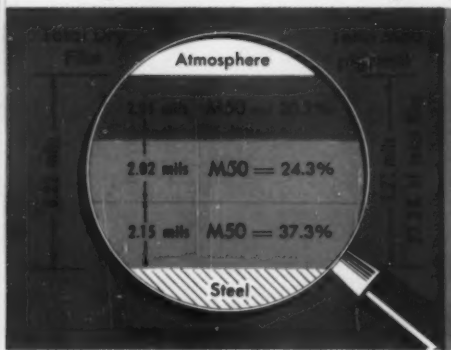
Where to get M50 pigment Defense in Depth paints

National Lead makes the pigment, not the paints. So the place to go for *M50* pigment specification paints themselves is your regular supplier. However, National Lead can help you familiarize yourself with these new paints in four ways: (1) show you *M50* pigment paint exposure test panels at its Sayville, L. I. Test Station; (2) send you a 24-page descriptive brochure, "Defense in Depth." (Mail coupon below); (3) provide technical aid in test applications; (4) help you develop suitable specifications for paints containing *M50* pigment.

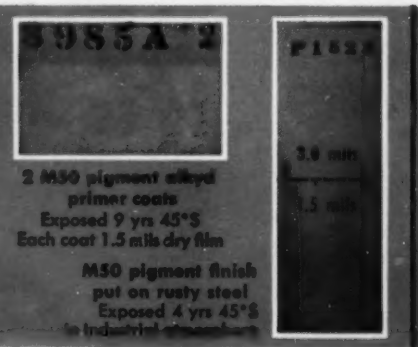
For M50 pigment paints themselves, contact your regular suppliers.

*National Lead Company trademark for a basic lead silico chromate pigment

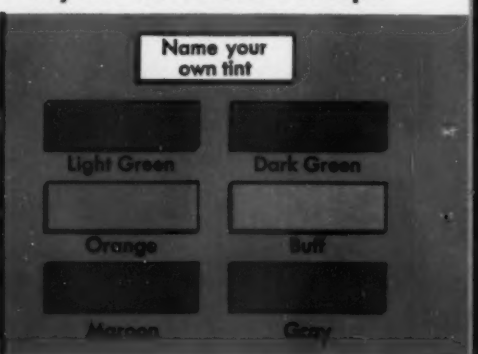
Why M50 Defense in Depth paints give you metal protection beyond all former concepts



In every coat...rust inhibition! Fused lead chromate is noted for rust-inhibition. The *M50* pigment particle structure permits paint makers to include large proportions of lead chromate in all coats of anti-corrosive systems.


3 9 8 5 A 2
2 M50 pigment alkyd primer coats
Exposed 9 yrs 45°S
Each coat 1.5 mils dry film
M50 pigment finish put on rusty steel
Exposed 4 yrs 45°S
3.0 mils
1.5 mils

In every coat . . . weather resistance! *M50* pigment is insoluble in water and has the excellent tint retention properties of fused lead chromate. Unlike other rust inhibitors, it actually boosts weather resistance of paints.



In every coat...your choice of colors! *M50* pigment gets along well with most tinting pigments, permits paint makers a wide range of colors...not only in intermediates and finishes but in primer coats as well. Colors stay true.

M50 Defense in Depth

National Lead Company,
111 Broadway, New York 6, N. Y.

Gentlemen: Please send me your 24-page brochure, "Defense in Depth." Include color card of the six *M50* pigment paints you recommend for steel highway structures.

Name_____ Title_____

Firm or Dept_____

Address_____

City_____ State_____

NEVER OVERLOOK ESSENTIAL BOUNDARY and ILLUMINATING LIGHTS IN HAZARD WARNING SAFETY

By actual test, the brightest, most revealing of all hazard lights, Dietz Flare Torches fully illuminate the danger in any weather: fog, rain, sleet, snow and wind — the stronger it blows the brighter the flame. Weather-proof, rugged and tough, they give up to 40 hours of clear, bright flame from low-cost kerosene.

Use Dietz Flare Torches to show what the hazard is.

ADEQUATE LIGHTING may save you thousands in tragedies, bad publicity and law suits. Write for our latest authoritative manual on Hazard Warning Lighting. It's free. R. E. Dietz Co., 114 Leavenworth Ave., Syracuse, N. Y.

Use Dietz Lanterns to outline the hazard boundaries.

The unfailing light of Dietz Lanterns clearly show the exact location, extent and boundaries of the hazard. Specially designed to burn brightly and steadily in high winds, snow or driving rain.

Use Dietz Visi-flashes to alert the approaching motorist.

Dietz Visi-flash warning lights are the brightest, safest, most trouble-free flashers on the market. They give far-carrying warning that can be seen from either direction, and over wide angles. The Dietz Visi-flash warns, "danger ahead."

Go DIETZ and you go Safely

Our Municipal Notebook

$3,792 Is Middle Pay Rate of Local and State Govrnments

HALF OF all the full-time employees of local and state governments in the United States are paid at a rate of less than $3,792 a year, according to the Bureau of the Census, U. S. Department of Commerce.

For full-time teachers employed by these governments, the mid-point is $4,324 a year; for all other full-time employees, $3,530.

These are figures from a forthcoming report of the 1957 Census of Governments, based on information from the more than 100,000 local governments in the nation as well as the 48 state governments.

Across the nation 1 in 7 local and state government employees is paid less than $2,400 per year, while 1 in 10 is paid $6,000 a year or more.

Pay rates in individual states depart considerably from the national pattern. In 20 states, at least 1 in every 5 government employees is paid less than $2,400 a year, and there are also 20 states where fewer than 1 in 20 are paid as much as $6,000 a year. On the other hand, there are 4 states where at least 1 in 7 is paid $6,000 a year or more, and there are 3 states where less than 1 in 20 full-time employees is paid under $2,400 a year.

Philadelphia Holds "Fair" on City Government

AMID the music of the Police and Firemen's Band, Mayor Richardson Dilworth officially opened Philadelphia's City Government Fair, held May 5-10.

The fair offered the public numerous exhibits of city departments, housed in candy-striped tents, as well as varied programs of entertainment. Forming part of City Employees' Week, the fair was intended to acquaint Philadelphia with the many services provided by municipal government.

The fair opening was preceded by a short parade through the center of the city. Features of the parade were the Fairmount park house troop, an old-time fire engine drawn by three horses, a float, and several pieces of city equipment.

One of the highlights of the week was "City Employees' Talent Night". A two-hour program featured a jazz combo, vocal selections, Filipino folk dances and acts of magic. A fashion show depicted different kinds of city uniforms. The program also included an escape-artist—an act presented by an employee of Philadelphia General Hospital.

The Water Department presented a variety show including a water department band, instrumental and musical combos, and clown acts. The clown was James Moran, a former circus midget who now works as a department inspector. The award-winning Uptown String Band, which is headed by William Runkle (a water department employee), presented a concert and drill.

A high-ladder thrill show and other acts were offered by the Fire Department, while the Police Department presented a musical and dance program. The Health Department presented a play and the Streets Department, a musicale.

Safety Programs Pay Off

TWO GOVERNMENT AGENCIES broke employee safety records recently, the Public Personnel Association announced.

The East Bay Municipal Utility District, Oakland, Calif. set a national safety record for the water works industry between January and August, 1957 working nearly 1,500,000 man-hours without a disabling injury.

The Port of New York Authority also reduced dramatically the number of disabling injuries through a five-year safety program.

The Port Authority's 1957 rate of 4.34 disabling accidents for every million man-hours worked was well below the industry average of 6.10 per million. The rate had dropped from more than 30 per million man-hours five years ago.

Does Your City Have a Municipal Program?

THE Check List shown below was prepared by the American Society of Planning Officials, Chicago, Ill.

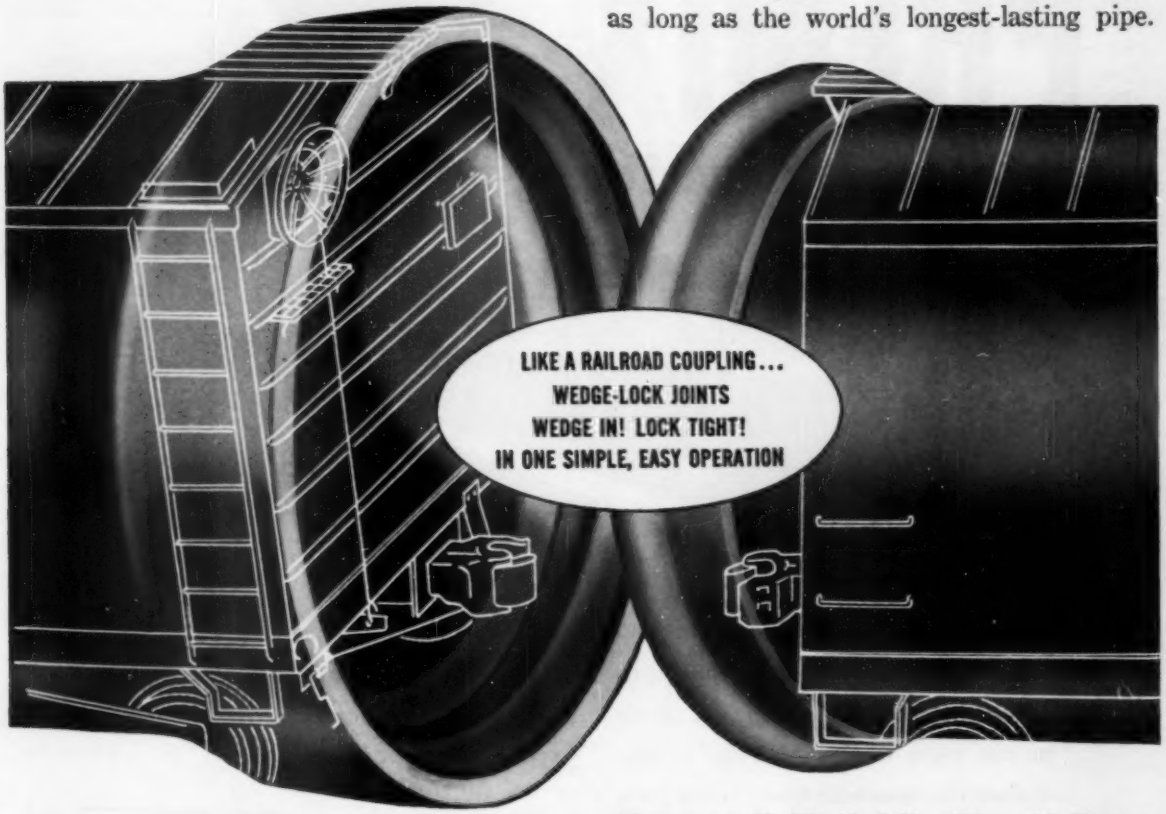
- Does your city (or county) have a long-range capital improvement program?
- Does the planning agency take the initiative in discussing with operating agencies the proposals submitted by them, and does it clearly state its reasons for suggested modifications?
- Do you have a good working relationship with operation departments in the city governments?
- Is it required by law that all public improvements be referred to your planning staff for consideration as to size, location, and relation to comprehensive plan?
- Is there a standard procedure that heads of operating departments must follow in submitting proposals for improvements?
- Do you have finance and debt coordination among independent taxing units operating in the same geographical area?
- Is there a procedure for considering the relative importance of each proposal and establishing priorities?
- Do you have a "shelf" of projects that can be started almost immediately in case "pump-priming" money is needed?
- Is your planning agency directly charged by character or ordinance to prepare recommendations on a program of capital improvements?
- Is the public notified of proposed projects and is ample time and formal opportunity given them to voice opinions?
- Do you have a system of coordinating public works undertakings among independent governmental units (particularly those not served by your planning department)?
- Do you have a routine—formal or informal—for keeping department heads acquainted with problems, plans, and proposals in all departments, so that each may know what the other is doing?
- Have you thought out what standards should be used to determine priorities and have you made these criteria available to everyone concerned?
- Is your council aware of the need to retain open land and is the acquisition of such areas a part of your capital improvement program to provide sites in the future for: forest preserves, marinas, watersheds, beaches, schools, and regional parks?

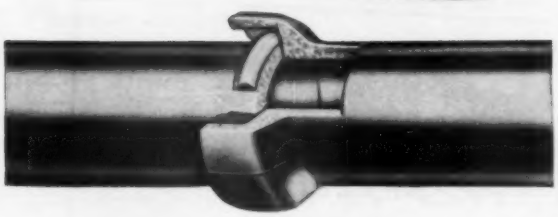
NEW Wedge-Lock* JOINTS

WEDGE IN! LOCK TIGHT!

Stop Infiltration and Roots

Patented Wedge-Lock Joints wedge in and lock tight in one simple, easy operation . . . in continuous compression . . . provide the tightest line . . . stop infiltration and root penetration . . . give easier, faster installation . . . keep installation costs down . . . permit strict adherence to engineered sewer designs . . . last as long as the world's longest-lasting pipe.





Always specify Vitrified Clay Pipe with Wedge-Lock Plastisol Joints.

Write to Listed Manufacturers for literature or an actual Wedge-Lock demonstration.

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THE FACTORY-JOINTED CLAY PIPE AVAILABLE NATIONALLY FROM LOCAL MANUFACTURERS

Order Wedge-Lock from any of these Vitrified Clay Pipe Manufacturers:

Cannelton Sewer Pipe Company, Cannelton, Ind.
Clay City Pipe Company, Uhrichsville, Ohio
The Evans Pipe Company, Uhrichsville, O.
Gladding, McBean & Company, Los Angeles 54, Cal. (Sold under trade name, "SPEED-SEAL")
The Logan Clay Products Company, Logan, Ohio
Oconee Clay Products Company, Milledgeville, Ga.
Pacific Clay Products, Los Angeles 54, Calif.
Pine Hall Brick & Pipe Company, Winston-Salem, N.C.
Pomona Terra-Cotta Company, Greensboro, N.C.
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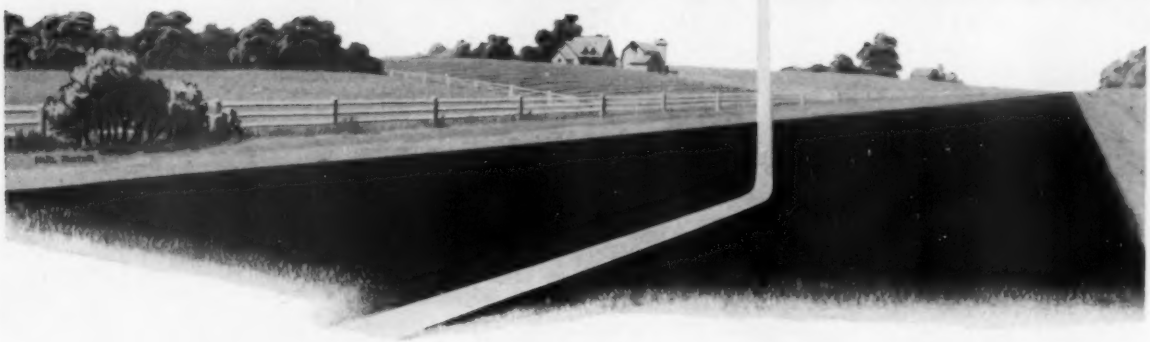

Prismo Premix is the reflective compound with *sealed-in* brilliance and durability. Easy to handle . . . quick to dry . . . ready to use right from the drum. Prismo Premix's extra-smooth blend of tiny glass spheres and tough semi-plastic binder can be sprayed or hand-painted and has excellent non-settling characteristics. Traffic polishes Prismo Premix to a brilliance that resists the ravages of time and weather . . . your pavement stripes have a gleaming reflection at night, a sharp visibility during the day. Prismo Premix assures lasting economy.

PRISMO ZEE-GARDS

The best protectors of wet reflective pavement stripes yet devised. Prismo Zee-Gards are resilient rubber in the shape of a Z, resembling angle iron which motorists avoid, thus remaining in proper lanes. These durable guards do not mar when hit, do not endanger traffic. Available in red or yellow.

PRISMO

SAFETY CORPORATION · Huntingdon, Penna.

Most Employees of Local and State Governments Have Retirement Coverage

OF THE MORE than 5.6 million employees of local and state governments in the United States, almost 4.7 million, or 83.8%, are covered by employee retirement systems, according to the Bureau of the Census, U. S. Department of Commerce.

Coverage ranges from 57% of employees in North Dakota to 96% in Delaware. In 23 of the 48 states, 85% or more of all local and state government employees are covered.

These figures are from a forthcoming report of the 1957 Census of Governments, based on information for April 1957, that was gathered from more than 100,000 local governments in all the states.

For full-time employees, coverage is considerably higher. Nationwide, it stands at 94.2%. Among the 48 states, coverage ranges from 85% in Georgia to more than 99% in Delaware, Iowa, and Utah. In 43 states, 90% or more of all local and state government full-time employees are covered.

On a nationwide basis, local and state retirement provisions are the sole type of coverage for almost half of all employees, full-time and part-time, while the federal program of Old Age and Survivors Insurance is the sole coverage for about one-seventh of the personnel. Almost one-fifth are covered both by local or state plans and by the federal programs.

Phoenix Makes Largest Annexation

PHOENIX, ARIZ. recently annexed 11.75 square miles to the city. This gives Phoenix an area of 52.55 square miles and a population estimated at 236,610.

The district annexed has a population estimated at 33,959 and an assessed valuation of $24,065,850. It is the largest area ever annexed in the city's history, surpassing the 6.7 square miles added in 1956 which included 1,760-acre Papago Park. As a result of this annexation, Phoenix also regained its place as the largest city, in area, in the state. Flagstaff claimed this honor on March 1 when it added 47 square miles to its boundaries.

Most of the newly annexed area, of Phoenix is residential and it was among homeowners that the annexation drive met with its greatest success. However, included on the annexation petitions were signatures of the Mountain States Telephone and Telegraph Company with an assessed valuation of $1,365,455 in the area; the Arizona Public Service Company with its $450,125 in valuation as well as a home builder and an industrial concern.

This latest annexation follows closely on the heels of two separate annexation moves made a short time ago, which added a total of 4.49 square miles of fringe area to the northeast and northwest with a total population estimated at 10,651. As a result, Phoenix has added 16.23 square miles to its area with an overall population estimated at 44,610. This is nearly as much territory as the entire city occupied in January 1950 when the area was 16.4 square miles with a population of 105,142.

Airport Traffic Reaches New High

AIR TRAFFIC at airports and along the airways reached new all-time levels of activity during 1957, according to James T. Pyle, Administrator of Civil Aeronautics, U. S. Department of Commerce.

The statistics on air traffic were compiled by the Civil Aeronautics Administration and are contained in the publication *Federal Airways Air Traffic Activity*.

Aircraft operations at airports having CAA airport traffic control towers numbered 25,151,000 during 1957, an increase of 14% over the 22,046,000 landings and takeoffs during 1956.

Chicago (Midway) Airport continued to be the busiest airport in the country during the year in terms of total operation, with 408,059 landings and takeoffs. The top ten airports in terms of total operations during 1957 were as follows:

Chicago (Midway)	408,059
Miami	366,714
Los Angeles	319,590
Albuquerque	310,711
Dallas	305,935
New York (LaGuardia)	301,015
Phoenix	285,214
Denver	280,174
Washington, D. C.	277,783
Long Beach, Calif.	276,922

Chicago (Midway) also led all airports in the number of air carriers and itinerant operations.

Color-Slide Report Stresses City's Progress

FOR THE fourth year, Witchita, Kans. is using color slides and a tape-recorded commentary to bring the story of the year's municipal progress to the people.

The 1957 report emphasizes long-range effects of some city actions in future community development. Among these developments were an economic base survey (*Pattern for Progress* — 1957, 220 published pages), purchase of a $32,000,000 water distribution system, and adoption of a $6,600,000 bond issue for secondary sewage treatment plant construction.

The report, titled, *Building Tomormorrows*, by City Manager Frank H. Backstrom, is a survey of municipal operations, accomplishments and outlook. The narration, with projection of the 102 color slides, runs 27 minutes. The visual report is available, upon bookings, to all civic groups—clubs, professional organizations, schools, PTA's and church societies. It has been shown as early as 6:00 in the morning and as late as 9:30 in the evening, seven days a week, in past years.

A two-page supplement to the visual report has been published and is handed to each individual who sees the visual report. A copy of this is appended to the narrative. Copies of the supplement and related material can be obtained from the Office of the City Manager, Wichita, Kans.

Bellefonte Simplifies Council Committees

THE BOROUGH of Bellefonte, Pa., recently reduced its council committees from 12 to three, upon the recommendation of Borough Manager Dale F. Heisel.

Under the new reorganization plan, the Safety Committee will be responsible for health, zoning and safety. The Service Committee will be responsible for all public services including streets, lighting, general administration, shade trees, and storm and sanitary sewers. The Utilities Committee will oversee water, sewage disposal, refuse collection, and sewer construction. General financial matters will be handled by the council as a committee of the whole. Council President Jack B. Burger is an ex officio member of all committees.

THE IMPROVED

Eagle "Big 12"

SERIES "KB 360" SIGNAL

with new features:

- Standard rectangular face (NOT ROUND) makes signal most effective.
- One piece, light weight die cast aluminum signal sections with integrally cast top, bottom and sides — easy to install — maximum flexibility.
- Back of hinge lugs arranged for simplified baffle plate-mounting.
- Serrations at top and bottom for positive locking. 5° adjustment. For use with serrated brackets.
- Die cast aluminum reflector holder.
- Adjustable focus socket for various lamp wattages. Supported independently of reflector.
- Scientifically precision engineered parabolic silvered glass reflector.
- Red, Amber, Green lenses available in either standard narrow beam or wide angle beam.
- All types of arrows available.
- Standard or Tunnel Visors.
- Stainless steel door hinges and door latches. Simplified connections make assembly into one, two or three light unit fast and easy.
- ***PLUS*** — Molded neoprene gaskets throughout — moisture and dustproof sealing.
- Provides maximum visibility and light intensity.

Write today for complete descriptive Bulletin No. A10-3. Address Dept. AC-658.

EAGLE

EAGLE SIGNAL CORPORATION
MUNICIPAL DIVISION
MOLINE, ILLINOIS

A Touch of Color

. . . puts gaiety and safety into playground equipment

By WILLIAM H. RADKE
Playground and Recreation Superintendent
Brookfield, Ill.

Candy stripes add dash and attractiveness to Brookfield's play areas.

WE couldn't say that this was original with Brookfield but we would like to recommend a touch of color in playgrounds to get the positive benefits of gaiety and safety.

Our experience started in a small playground that had been established for eight years. The usual gray of galvanized iron was the basic color on our Game-Time slide and swing equipment. Neighbors asked if something could be done to dress up the area so we decided to paint the equipment red and white with Rust-Oleum enamel.

To do this, we first applied white enamel to the whole surface. After allowing it to dry for 48 hours, we placed masking tape on the swings to form 8-inch horizontal stripes on the uprights and vertical stripes on the cross bars. Red was brushed on and the tape removed as soon as the paint became tacky. The swing seats were painted red and the chains were silvered.

We followed the same procedure on the slide, using the stairs as line guides for horizontal stripes on the ladder and chute. This can easily be done with a suitable carpenter's level. Even the trash container received the color treatment.

The result was a colorful area. Usage increased and some residents told us they had never been aware of a play area in this location before in spite of their nearness to it.

From a safety point of view, the bright equipment is easily seen, reducing the possibility of its being accidentally bumped into by the children using it.

The extra expense was nominal, public acceptance was gratifying and play population increased. Try it, and you are bound to build good will and public enthusiasm.

Marinas Pay Off Municipally

MUNICIPAL investments in marinas can pay off generously, according to a study made in Jacksonville, Fla.

Results of the survey indicate that about 19,000 persons made use of the two existing municipal outboard launching ramps which had cost the city only $8,250. In contrast, only 4,780 people used the city golf and tennis installations, which represent a municipal investment of $409,000.

The marinas also were substantially business stimulators. The people of Jacksonville spent a total of $2,328,860 for outboard motors, boats and related accessories while they spent only $117,000 for golf and tennis equipment.

Park Programs Need Long-Range Plans

IN Rock Hill, S. C. Parks and Recreation Director Franklin C. Hill always plans about 10 years ahead. In this way, he knows that the work done each year will be a positive, constructive addition to the welfare of his city.

Director Hill always makes his plans cooperatively with other departments of the city. In this way, he frequently can enlist their aid without any inconvenience, when they are a part of the original planning program. As the 10-year objective is realized, he renews the planning program for an additional 10 years.

With this plan established, he has little trouble working out his own yearly program. This is done in two ways: first, he lists the projects which his own department can do with its own personnel and within its own budget; and next, he presents those that need bond issue financing to become realities.

Those that his department can do by itself are listed in order of their priority and fitted to the work pattern for the department. For those that require bond issues, he has found that if the community has become aware of the plans, it will support and approve the requests.

Residential parks with pioneer-type stockades like this are on Rock Hill's park planning program.

Informative Catalogs - Yours For The Asking!

These catalogs contain information of great value to public officials and engineers. Write directly to the manufacturers, or use the Post Card on the insert following Page 52.

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122 Because M50 pigment paints are protected against the cause of color loss, they stay brighter and retain hue longer. In addition, they are highly rust- and weather-resistant. For steel structures, this means greater protection, long-lasting color, less frequent painting; for municipalities, less cost for maintenance. *Defense in Depth* fully describes these pigments; for your copy, write NATIONAL LEAD CO., 111 BROADWAY, NEW YORK 6, N. Y.

Tackles Trucking Jobs with Ease

123 Chevrolet's new triple torque tandem trucks have plenty of muscle for beating big jobs. Special construction features permit them to get jobs done quickly, dependably and economically with minimum stress and wear on parts. For full information on these heavy-duty chassis and their municipal application, write CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICH.

All About Salt Stabilization

124 Ask the man who knows—your street engineer. He'll tell you that salt stabilized gravel surfaces last longer, cost less to maintain, are smoother, and give more service per dollar expended. For additional information, ask MORTON SALT CO., INDUSTRIAL DIV., DEPT. AC-558, 110 N. WACKER DRIVE, CHICAGO 6, ILL., for its booklet on salt stabilized roads.

Aerial Mapping for Every Municipal Need

125 Aerial mapping of every magnitude and for every need is the specialty of FAIRCHILD AERIAL SURVEYS, INC. Whether for initial land use survey or progress report on a large regional project, you can depend on this company to do the work quickly and accurately. To learn how its facilities and know-how can help your municipality, write the company at 224 EAST ELEVENTH ST., LOS ANGELES, CALIF.

Cleans Utility Service Boxes and Valves

126 The Perfectool is a miniature two-jawed clamshell bucket that cleans water and gas service boxes and valves. Quick-acting and easy to operate, it effectively removes stones, debris and dirt without requiring the box to be dug up. For details on this money-saving tool, write PERFECTOOL CO., 4611 NORTH CLARK ST., CHICAGO 4, ILL.

Speed Pipe Laying, Assure Water-Tight Joints

127 Municipal engineers, sanitary officials and construction men know that Tylox rubber pipe gaskets make their job easier. For not only do they make sewage and drainage pipe joints leakproof and root-proof, they permit fast assembly of the line, wet-trench jointing, immediate backfilling, and compensate for pipe angularities. For details, write HAMILTON KENT MFG. CO., 427 WEST GRANT ST., KENT, OHIO.

(See page 30 for more Bulletins)

It fits in our budget with greatest of ease,
With savings at which no smart buyer can sneeze,
Low cost plus long life and best service he sees
Mean premium pipe at low pay.

It matches our plans with the greatest of ease,
Complete with bends, shorts, Y's, adapters and T's,
Designed for what pressure or backload we please,
The pipe we are proud to OK.

It goes in the ground with the greatest of ease,
Is rapidly jointed come storm, heat or freeze,
No caulk, bolt or weld—installation's a breeze,
And backfilled the very same day.

It carries full pressure with greatest of ease,
Corrosion and tubercles never displease,
High maintenance costs never put on the squeeze
With uncalled for bills to defray.

LOCK JOINT CONCRETE PRESSURE PIPE *for this* QUARTET!

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It's thrifty yet safe everybody agrees,
No wonder we all say, "No substitutes, please!"
When Lock Joint's the best pipe to lay.

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122 Because M50 pigment paints are protected against the cause of color loss, they stay brighter and retain hue longer. In addition, they are highly rust- and weather-resistant. For steel structures, this means greater protection, long-lasting color, less frequent painting; for municipalities, less cost for maintenance. *Defense in Depth* fully describes these pigments; for your copy, write NATIONAL LEAD CO., 111 BROADWAY, NEW YORK 6, N. Y.

Tackles Trucking Jobs with Ease

123 Chevrolet's new triple torque tandem trucks have plenty of muscle for beating big jobs. Special construction features permit them to get jobs done quickly, dependably and economically with minimum stress and wear on parts. For full information on these heavy-duty chassis and their municipal application, write CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICH.

All About Salt Stabilization

124 Ask the man who knows—your street engineer. He'll tell you that salt stabilized gravel surfaces last longer, cost less to maintain, are smoother, and give more service per dollar expended. For additional information, ask MORTON SALT CO., INDUSTRIAL DIV., DEPT. AC-558, 110 N. WACKER DRIVE, CHICAGO 6, ILL., for its booklet on salt stabilized roads.

Aerial Mapping for Every Municipal Need

125 Aerial mapping of every magnitude and for every need is the specialty of FAIRCHILD AERIAL SURVEYS, INC. Whether for initial land use survey or progress report on a large regional project, you can depend on this company to do the work quickly and accurately. To learn how its facilities and know-how can help your municipality, write the company at 224 EAST ELEVENTH ST., LOS ANGELES, CALIF.

Cleans Utility Service Boxes and Valves

126 The Perfectool is a miniature two-jawed clamshell bucket that cleans water and gas service boxes and valves. Quick-acting and easy to operate, it effectively removes stones, debris and dirt without requiring the box to be dug up. For details on this money-saving tool, write PERFECTOOL CO., 4611 NORTH CLARK ST., CHICAGO 4, ILL.

Speed Pipe Laying, Assure Water-Tight Joints

127 Municipal engineers, sanitary officials and construction men know that Tylox rubber pipe gaskets make their job easier. For not only do they make sewage and drainage pipe joints leakproof and root-proof, they permit fast assembly of the line, wet-trench jointing, immediate backfilling, and compensate for pipe angularities. For details, write HAMILTON KENT MFG. CO., 427 WEST GRANT ST., KENT, OHIO.

(See page 30 for more Bulletins)

Catalogs for You

It fits in our budget with greatest of ease,
With savings at which no smart buyer can sneeze,
Low cost plus long life and best service he sees
Mean premium pipe at low pay.

It matches our plans with the greatest of ease,
Complete with bends, shorts, Y's, adapters and T's,
Designed for what pressure or backload we please,
The pipe we are proud to OK.

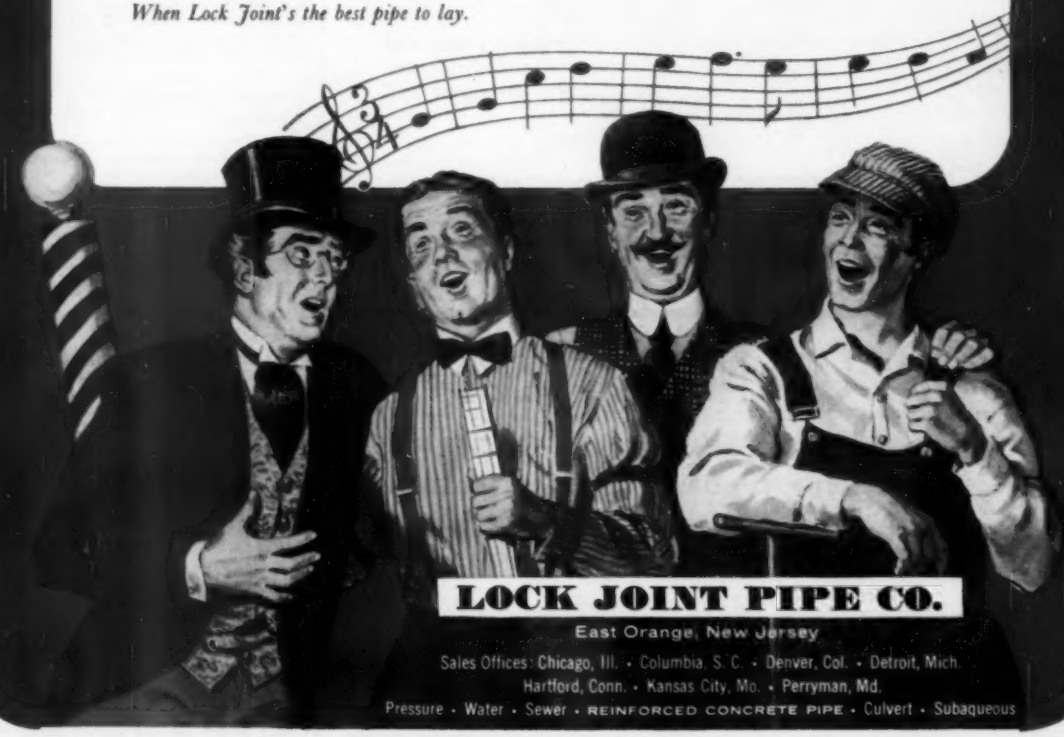
It goes in the ground with the greatest of ease,
Is rapidly jointed come storm, heat or freeze,
No caulk, bolt or weld—installation's a breeze,
And backfilled the very same day.

It carries full pressure with greatest of ease,
Corrosion and tubercles never displease,
High maintenance costs never put on the squeeze
With uncalled for bills to defray.

LOCK JOINT CONCRETE PRESSURE PIPE *for this* QUARTET!

CHORUS

It fills all our needs with the greatest of ease,
It's thrifty yet safe everybody agrees,
No wonder we all say, "No substitutes, please!"
When Lock Joint's the best pipe to lay.



LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich.
Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

Engineering PLUS...

Keeps Tank Interiors Corrosion Free at a Practical Cost

One of the five municipal tanks serving the City of Jacksonville, Fla. which has been cathodically protected by E.R.P. system since 1942.

The City of Jacksonville, Fla. has relied on engineering plus from Electro Rust-Proofing Corp. since 1942 to protect water storage tanks serving the city. Since installation of cathodic protection, tanks have been virtually corrosion free on the under water surfaces and maintenance costs have been reduced to a minimum.

E.R.P. engineering plus means cathodic protection systems
designed to meet your needs...
maintained to your benefit...
priced to your profit...

E.R.P. provides engineering plus to meet any corrosion problem of submerged or buried metals. For full information on cathodic protection for your water storage tanks, water treatment structures and pipelines, write for bulletin E-42.

ERP CATHODIC PROTECTION SINCE 1935

ELECTRO RUST-PROOFING CORP.
A SUBSIDIARY OF WALLACE & TIERNAN INC.
30 MAIN STREET, BELLEVILLE 9, NEW JERSEY
CABLE: ELECTRO NEWARK, N. J.

W&T DRY CHEMICAL FEEDERS

For Accurate Feeding Of Water Treatment Chemicals

Full line of wide range dry chemical feeders capable of controlling a few ounces to 3000 lbs. per minute.

Write for Bulletin M-38 for complete Dry Feeder information.

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Advantages of Traveling-Grate Incinerators

128 Your refuse will be incinerated more thoroughly, with a minimum of nuisance and at low cost when your furnaces are equipped with the continuous-feed C-E Incinerator Stoker. These units, designed to thrifty, resourceful engineering principles, are thoroughly described in literature provided by COMBUSTION ENGINEERING, 200 MADISON AVE., NEW YORK 16, N. Y.

Better Sewage Treatment

129 Many new and advanced features have been incorporated into Infilco's improved and field-tested "rotagrator", designed for faster and better comminution of sewage solids. Offered in five sizes for channels 2 feet to 6 feet in width, it is fully described in *Bulletin* 5150, available from INFILCO, INC., BOX 5033, TUCSON, ARIZ.

Large Traffic Sign Needs

130 The need for large traffic signs is increasing. *Brochure* 58R will help you meet this need. It contains installation procedures, bid specifications and general information on new aluminum sheets for both ground and overhead traffic signs of large dimension. For your copy, write TASSCO, 84 FOUNDRY ST., NEWARK 5, N. J.

Sportslighting

131 Every seat becomes a good seat at nighttime sport events when comfortable seeing conditions are enjoyed—and teams tend to play better, too. CROUSE-HINDS CO., SYRACUSE 1, N. Y., in its *Bulletin* 2701, highlights the advantages of football floodlighting and features several sportslighting layouts based on IES recommendations. Applications are for small as well as large installations.

Rugged, Heavy-Duty Wrecker

132 There's lots of hustle in a Ward LaFrance heavy-duty wrecker. For these 20-ton units are built big to tackle big city jobs. Equipped with two independently operated winches, each capable of hoisting 20,000 pounds, they are custom-engineered to fit specific local requirements. For details, write WARD LaFRANCE TRUCK CORP., ELMIRA, N. Y.

Purchasing Municipal Supplies

133 Municipal purchasing agents will find *Bulletin No.* 155 a handy, fingertip guide to purchasing municipal supplies. Near-comprehensive, it includes water works equipment, police and fire department supplies, sewer cleaning machines, signs and traffic control apparatus, pipe locators, etc. For your copy, write W. S. DARLEY AND CO., 2810 WASHINGTON BLVD., CHICAGO 12, ILL.

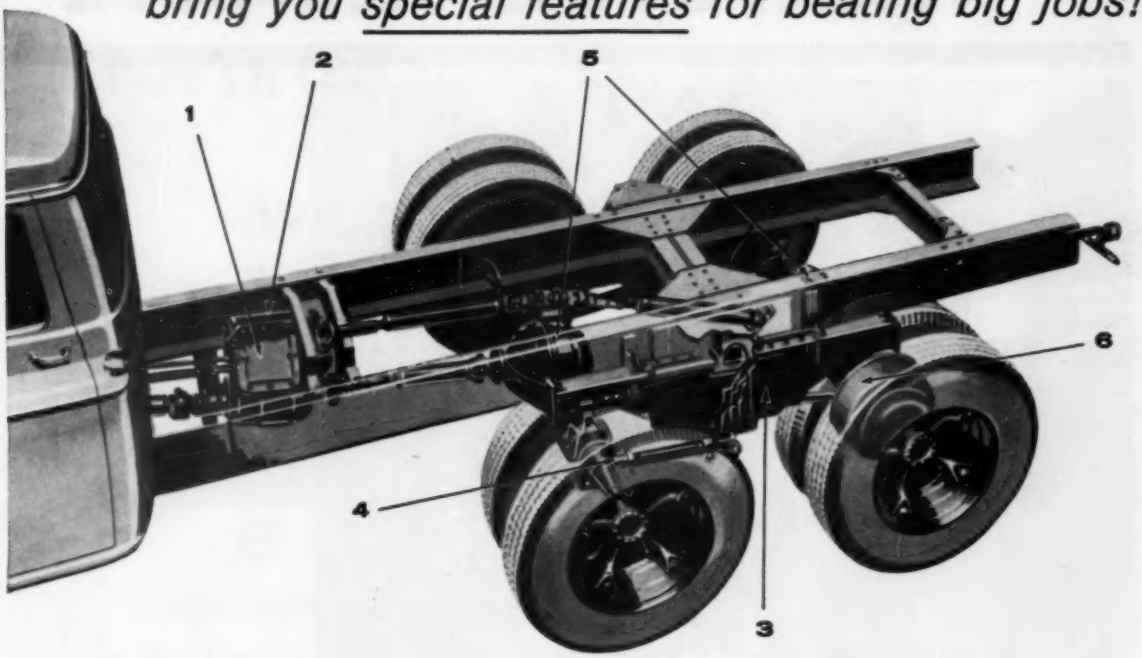
Efficient Brush Disposal

134 "No Burning" ordinances are never a problem when you've the Asplundh Chipper approach to brush disposal. With it brush is chipped on location, quickly and efficiently. Long hauls, wasteful man-hours and other expense-laden operations are eliminated. For details, write ASPLUNDH CHIPPER CO., 501 YORK ROAD, JENKINTON, PA.

(See page 34 for more Bulletins)

CHEVROLET'S NEW TANDEMS

bring you special features for beating big jobs!



Because of their unique features, Chevrolet's new Triple-Torque tandems are more economical to operate. They're designed to bull their way through the tough spots with tremendous traction . . . with less stress and wear on parts!

Here are some of the design advantages that make Chevrolet tandems tops on big, tough jobs:

1. Chevrolet's exclusive TRIPLE-TORQUE DRIVE is provided by individual propeller shafts driven from a 3-speed auxiliary transmission right in the power divider.

2. Integral 3-SPEED POWER DIVIDER can be shifted instantly to single axle drive for economy or dual axle drive for full traction over rugged roads.

3. The Triple-Torque tandem's articulated WALKING BEAM assures owners of greater ground clearance . . . the utmost flexibility for operation on rough terrain.

4. "TRACKING" WHEELS, because of Chevrolet's rubber-bushed steering torque rods and walking beam ends, stay in alignment on straight roads, follow curves. Increase tire life, driver control.

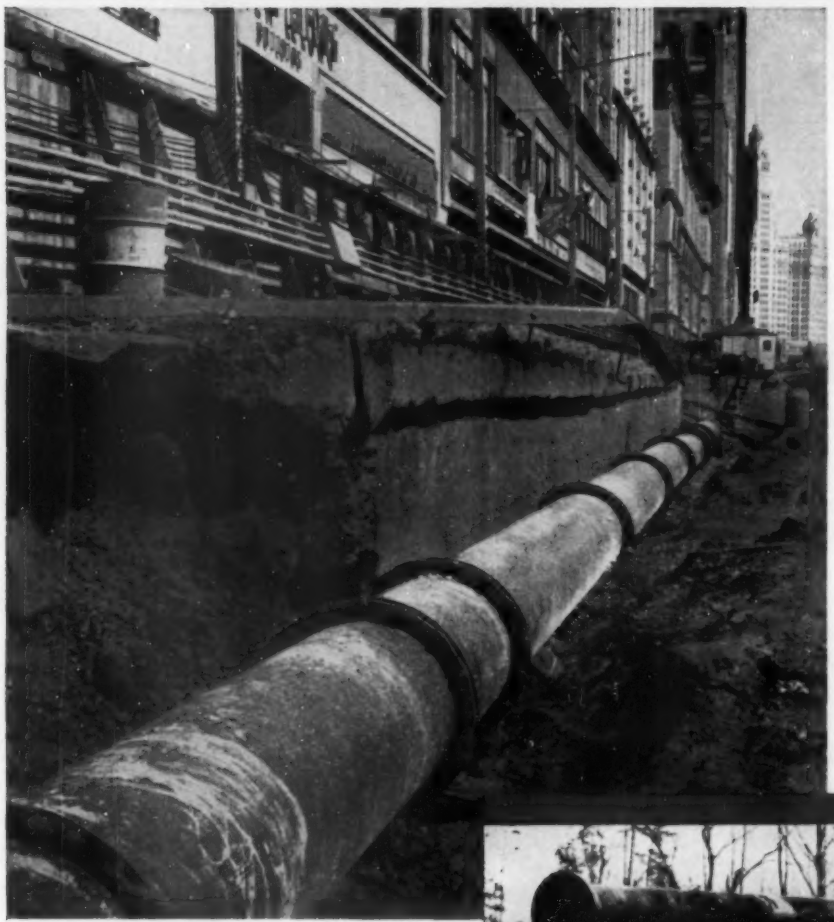
5. Two built-for-work 15,000-LB.-CAPACITY AXLES with 7.20 to 1 ratios! Choice of standard 7,000-lb. or extra-cost 9,000-lb.-capacity front axle.

6. BIG TWIN-ACTION BRAKES are designed to last! Extra braking power with heavy-duty Hydrovac power brake. Full-Air or Air-Hydraulic brakes optional at extra cost.

Let your Chevrolet dealer show you these, and the many more exclusive tandem features designed to get your big jobs done quickly, dependably and economically! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET **CHEVROLET TASK·FORCE TRUCKS**

WHATEVER THE SITE



Chicago, Ill.—Installing 24" Mechanical Joint cast iron pipe for water line rerouted due to construction of underground garage beneath Michigan Avenue.

Hickory, N. C.—High beam strength of Cast Iron Pipe makes it particularly adaptable to this type of construction on outfall sewer.

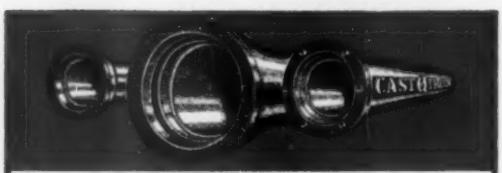
MODERNIZED cast iron

OR SITUATION...

there's a Cast Iron Pipe for the job

WHAT'S YOUR PROBLEM?

let us help you solve it...



6 reasons

why Cast Iron Pipe

is #1 choice of U. S. A.

1. **HIGH FLOW CAPACITY...** Cement lined cast iron pipe and fittings will not tuberculate . . . delivers a full flow for the life of the pipe.
2. **LONG LIFE...** 42 North American cities are still using cast iron water mains laid 100 years and more ago. Hundreds more have passed the 50 year mark.
3. **BEAM STRENGTH...** Cast Iron Pipe is inherently tough . . . stands up under heavy traffic load, soil displacement and disturbance.
4. **EXTERNAL LOAD RESISTANCE...** 6" Class 150 Pipe withstands a crushing load of 17,900 pounds per foot . . . nearly 9 tons.
5. **CORROSION RESISTANCE...** Cast Iron Pipe effectively resists corrosion . . . vital factor in its long life and dependability.
6. **TIGHT JOINTS...** A full range of leak-proof, low cost, easy-to-assemble joints for pipe and fittings are available for all conditions.

No telling where you may need to lay pipe . . .

Hilly country or flat, city street or rural lane, under superhighways, railroads or rivers.

But whatever the site or situation you *can* be sure of this: with cast iron pipe properly installed there'll be no trouble on or after the job.

Dependability, long life are built into every rugged length of cast iron pipe. Dependability *proved*, not merely promised.

THE MAN WHO CHOOSES CAST IRON PIPE TODAY WON'T PAY FOR IT AGAIN TOMORROW!

CAST IRON

Cast Iron Pipe Research Association
Thos. F. Wolfe, Managing Director
Suite 3440, Prudential Plaza, Chicago 1, Ill.

pipe FOR MODERN WATER WORKS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Traffic Striping That Goes a Long Way

135 Easy to handle, quick to dry, Prismo Premix reflective pavement striping improves with wear. Traffic polishes this extra-smooth blend of tiny glass spheres and tough semi-plastic binder to a brilliance that gives gleaming reflection at night and sharp visibility during the day. For details, write PRISMO SAFETY CORP., HUNTINGDON, PA.

Fight Snow and Ice

136 If Dame Nature's snow frolics pointed up the inadequacies of your snow-fighting equipment this past winter, it's none too soon to think about correcting these deficiencies. A simple way, is to become acquainted with the complete line of well-built and economical ice and snow-fighting equipment made by WAUSAU IRON WORKS, WAUSAU, WIS.

Crawler Tractors

137 *Catalog* MS-1289 points up the features of the Allis-Chalmers HD-16 diesel crawler tractor and tells of matched equipment available for it. For your copy, and for information on the HD-16 DC and D (MS 1284) and the HD-6E (MS-1296), write CONSTRUCTION MACHINERY DIV., ALLIS-CHALMERS MANUFACTURING CO., MILWAUKEE, WIS.

Algae, the "green scum" of swimming pools, develop so fast they can completely cover walls, floor, ladders and walkways with an unsightly, slippery film in a few short weeks. They can discolor the water . . . even cause obnoxious odors when dead. The high dosages of chlorine necessary to kill algae may be irritating to swimmers and corrosive to equipment.
How then can algae be controlled? By the easy addition to the water of an algicide based on HYAMINE 2389, an algae-killing chemical manufactured by Rohm & Haas. Regular use of the formulated product will keep the pool water invitingly clear, the walls sparkling clean. What's more, HYAMINE 2389 formulations are excellent disinfectants for swimming suits, caps and gear . . . help control athlete's foot.
Managers of city, club and community pools, chemical formulators, swimming pool supply houses and others interested in keeping swimming pools free of algae should write for names of suppliers and for additional information.
Chemicals for Industry
ROHM & HAAS COMPANY
WASHINGTON SQUARE, PHILADELPHIA 5, PA.
Representatives in principal foreign countries
HYAMINE is a trade-mark, Reg. U.S. Pat. Off. and in principal foreign countries.
HOW TO KEEP SWIMMING POOLS FREE OF ALGAE
HYAMINE 2389

Protects Municipal Equipment

138 If it needs to be locked, why not master lock it? For the MASTER LOCK CO., MILWAUKEE 45, WIS., fashions a full line of locks for nearly every municipal protection need—combination padlocks, special long or short shackles, etc. All discourage tampering. Catalog available from the company on request.

Simplifies Curb-and-Gutter Installations

139 To make curb-and-gutter installations successfully, both constructionwise and financially, specify Blaw-Knox Universal Forms. These standardized, interchangeable steel forms are adaptable to many different jobs. Sturdy, yet light in weight, they are easy to set and strip. For details, write BLAW-KNOX CO., CONSTRUCTION EQUIPMENT DIVISION, 30 CHARLESTON AVE., MATTOON, ILL.

Eliminates Costly Ditching and Repair

140 Still marring streets with needless, costly patches because you've got to lay pipe underground? There's no need to, not when a Greenlee hydraulic pipe pusher will do the job quickly and efficiently without extensive ditching and repair. For details on this handy tool, write GREENLEE TOOL CO., 2026 COLUMBIA AVE., ROCKFORD, ILL.

Portable Maintenance Equipment for Municipalities

141 . . . is carryable and a ruggedly-built, efficiently operating piece of equipment that takes heavy-duty work in stride, it's probably a Homelite. Pumps, chain saws, electric rock drills, generators and builders hammers are but a few items available from the complete line of carryable construction equipment available from HOMELITE, 106 RIVERDALE AVE., PORT CHESTER, N. Y.

Mobile Trencher Digs Fast at Low Cost

142 Whether the task be light or heavy, the Oliver Super 83 Hydro-Trencher digs fast, easily and at low cost. This versatile rig is built for trenching and excavating, and can dig through the hardest soils, even frozen ground. Highly mobile with six travel speeds, it comes with gasoline or diesel engine. For details, write THE OLIVER CORP., 19300 EUCLID AVE., CLEVELAND 17, OHIO.

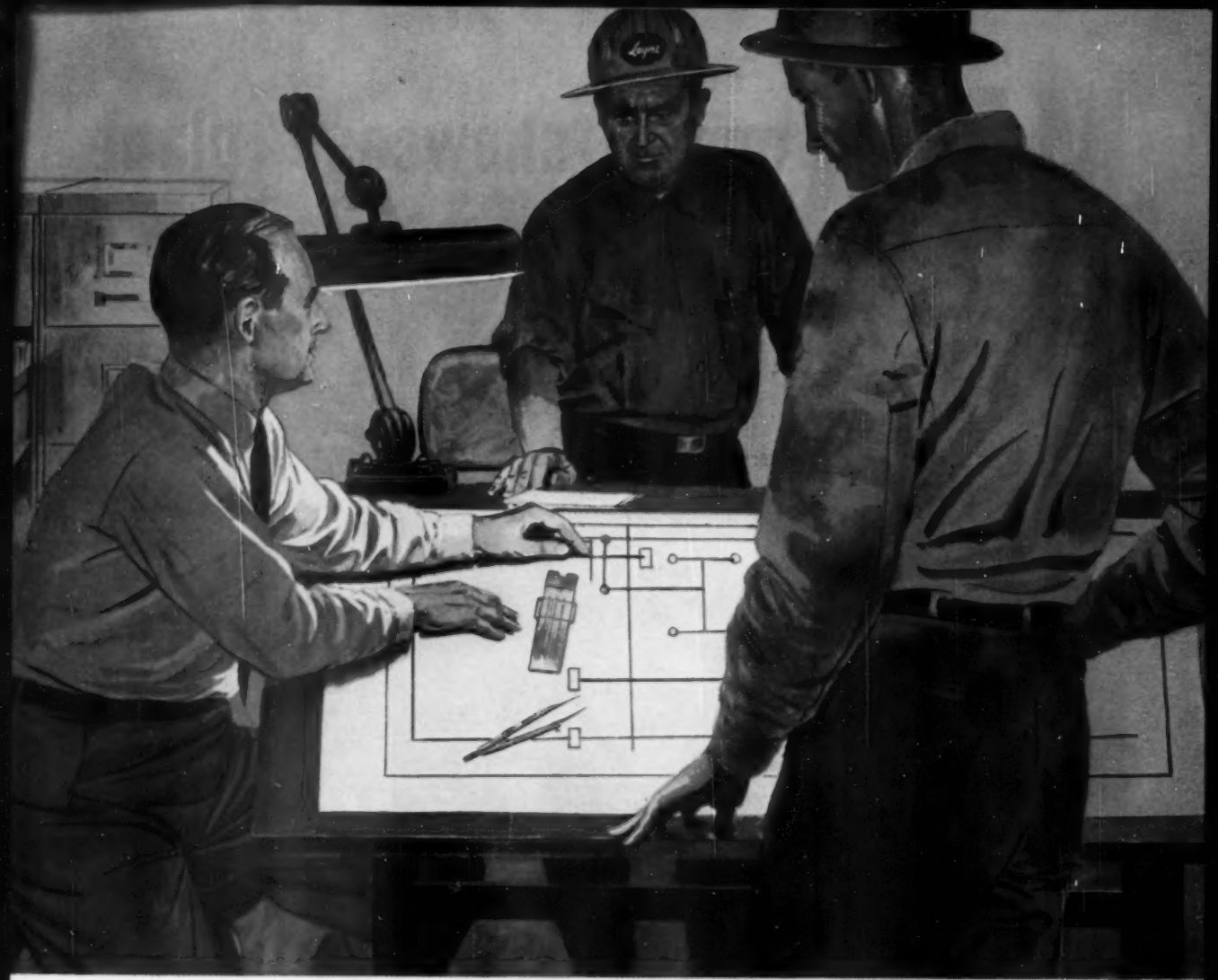
Dependable Water Storage

143 Koven steel reservoirs are built to give dependable, trouble-free water storage. Their steel plate construction assures uniform, pre-determined strength, as well as permanently watertight service, and they are not affected by frost. Available in every size and shape, they are detailed in *Bulletin No. 555*. For your copy, write KOVEN FABRICATORS, INC., 90 EAST DICKERSON ST., DOVER, N. J.

Engine Power for Municipal Waterfront Operations

144 For powering nearly every type of small craft in service on the municipal waterfront, EVINRUDE MOTORS, 4317 NORTH 27th ST., MILWAUKEE 16, WIS., offers a complete range of outboard motors. To learn which of these 3 to 50 hp engines can best serve your needs for rescue squad work, patrol, emergency fire fighting, weed eradication, etc., write the company.

(See page 38 for more Bulletins)



Water plans – include LAYNE

No two petroleum operations can be alike. Since heat load removal and process consumption vary, so must the design of the water system supplying the need. Providing for normal operational needs plus a safety margin for peak operations is a job for water specialists.

Layne offers complete water system service, from initial geological studies thru well drilling and pump installation to service and maintenance.

A complete staff of hydrologists, engineers, consultants, technicians and field crews are available for any phase of water system planning, installing and servicing. Layne services do not replace but coordinate with the services of consulting, plant or city engineers.

LAYNE & BOWLER, INC., MEMPHIS
GENERAL OFFICES AND FACTORY • MEMPHIS 8, TENN.
LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Layne

Water Wells • Vertical Turbine Pumps • Water Treatment

TO: LAYNE & BOWLER, INC.
MEMPHIS 8, TENN.

Gentlemen: Please send me bulletin No. 100.

*Name*_____

*Title*_____

*Organization*_____

_____

*Address*_____

*City*_____

*State*_____

MACK opens "showcase" plant

Custom engineering **assures every Mack customer that his specific needs are translated into custom-built equipment in which all components are of the highest caliber, and all are engineered to work together in dependable harmony.**

They're "built like a Mack"—**which means that all Macks are fashioned of the finest materials, made on the most modern of precision machinery, and produced by workmen who keep traditions of careful craftsmanship alive and vital.**

Satin-smooth finishes **are among the innumerable touches that are hallmarks of a Mack product. In this ultra-modern paint shop, Macks are given a finish approached only by the finest of luxury automobiles.**

Testing—1 . . . 2 . . . 3 **different Mack pumpers, fresh off the assembly line. Mack has developed the science of production control to the point where—from each of two lines—flows a progression of different vehicles, each specially assembled for a special order to individual specifications.**

for fire apparatus in Midwest

Ceaseless checking—of every individual part . . . of each minor and major component . . . of the completed vehicle—helps Mack maintain the finest quality in the industry. When these cab-forward canopy-cab combination pumpers leave the plant, they're set to tackle the most demanding conflagration.

New Mack plant has most modern and complete facilities in the industry

Mack's new fire apparatus plant in Sidney, Ohio, utilizes 250,000 square feet of floor space to produce quality fire apparatus—custom-built Macks. In this model plant, every piece of apparatus is engineered and built to order as an integrated unit. Mack components—such as cabs, engines, transmissions, frames, axles, bodies—are made by Mack to meet the strictest fire-fighting standards. Mack, in fact, controls its quality by manufacturing more of its own product than any other maker.

You're invited, whenever you're in the vicinity of Sidney, Ohio, to drop in and tour this great new plant. See for yourself what extremes of precision and rugged stamina are built into every Mack. Mack Fire Apparatus, Sidney, Ohio. In Canada: Mack Trucks of Canada, Ltd.

MACK

first name for

FIRE APPARATUS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Speedier, More Accurate Pipe Cutting, Valve Placement

145 When placing valves in your municipal water lines, under pressure, you will reduce pipe-cutting time considerably if you use a Mueller CL-12. New design and new features give automatic, more controlled operation of cuts up to 12 inches. On any type of pipe, works moves smoothly and safely. For details, write MUELLER CO., DECATUR, ILL.

Advantages of Asbestos-Cement Pipe

146 Benefits and features of asbestos-cement pipe are detailed in a new pamphlet intended for those contemplating the installation of water pipe in their communities. Available from KEASBEY & MATTISON CO., AMBLER, PA., *Brochure* P-17 highlights the ability of this type of pipe to retain its original smooth bore through years of service.

Economical Traffic Signs

147 The benefits of overlaid plywood traffic signs are explained in a leaflet from SIMPSON LOGGING CO., 1010 WHITE BLDG., SEATTLE 1, WASH. Durable and economical, these signs can be fabricated with standard workshop tools. For your copy of *Signs That Last!*, write the company.

CALIFORNIA

MISSOURI

LOUISIANA

ALABAMA

"everybody's doing it"

WHAT'S THE POINT?

IT'S TYTON JOINT*

*Patent Pending. Trademark ®

Easy to lay—you'll like it, too!

IMMEDIATE SHIPMENT

2" AND 2¼" THROUGH 12" SIZES

McWANE CAST IRON PIPE COMPANY

GENERAL OFFICES & FOUNDRIES, BIRMINGHAM, ALA.

Sales Offices: Dallas Chicago Kansas City New York Birmingham

Control of Odors from Sewage and Industrial Waste

148 When odors caused by industrial wastes, sewage and sulphide formations offend, let Cloroben lend a hand. It eliminates such odors safely, efficiently and economically. How it works and its many uses are described in a technical bulletin, available from CLOROBEN CHEMICAL CORP., DEPT. AC-5, 115 JACOBUS AVE., SOUTH KEARNY, N. J.

Good Street Lighting Is Good Business

149 Good street lighting is a sound investment. In new subdivisions it often acts as a selling feature; in business areas it invites nighttime customers; at all times it increases the public safety factor and adds nighttime beauty. L-M offers a full line of luminaires for every type of street lighting need, together with application engineering service. For details, write LINE MATERIAL INDUSTRIES, MILWAUKEE 1, WIS.

Your Water Supply System—Asset or Liability?

150 Because your water supply system affects every phase of community life, it can either enhance or inhibit community comfort, safety, and economic growth. Through the efficient design, low-cost installation, and in-service economies provided by Transite water mains, you can help place it on the positive side of the ledger. *Booklet* TR-160A, available from JOHNS-MANVILLE, BOX 14, DEPT. AC, NEW YORK 16, N. Y., will tell you how.

Powered Economy for Pneumatic Tools

151 Extra power and efficiency is another way of saying more air at less cost, and this is what Schramm's 125 cfm Pneumadiesels deliver. Available in five compact compressor mountings, these enbloc power units also offer longer wear and easier maintenance. For details, write SCHRAMM, INC., 603 NORTH GARFIELD AVE., WEST CHESTER, VA.

Low-Flow Sewage Pumping

152 Komline-Sanderson pneumatic sewage ejectors provide a sanitary and economical sewage pumping system for low flows. They eliminate complex and intricate piping and provide a simple and dependable means of lifting sewage. *Bulletin No.* KSM-2 describes them fully. For your copy, write KOMLINE-SANDERSON ENGINEERING CORP., 103 HOLLAND AVENUE, PEPACK, N. J.

Everything Electrical for Municipalities

153 When you need facts and figures on electrical items in order to intelligently plan and consolidate municipal electrical installations, call on GRAYBAR ELECTRIC COMPANY, INC., 420 LEXINGTON AVE., NEW YORK 17, N. Y. This concern has data on 100,000 such items and a staff of specialists to assist you in solving out-of-the ordinary problems in any electrical field.

Effective Traffic Control

154 Can't find the formula for a safe, efficient traffic control program? Then you haven't tried El-Tec. For this radio interconnection system gives complete traffic control in three important ways: traffic programming, control from emergency vehicles, CD evacuation control. For details, write ELECTRONIC PROTECTION INC., 2097 NORTH HAWTHORNE AVE., MELROSE PARK, ILL.

(See page 40 for more Bulletins)

Fights office expense

because it carries a triple cargo of ink!

INTRODUCING THE NEW ***LONG-WRITING***

Autopoint

CARGO T.M.

OFFICE PEN

Holds 3 times more ink . . .
Writes 3 times longer than ordinary office ball pens . . . save up to 2/3

AMERICAN RESEARCH & TESTING LABORATORIES — TESTED — CERTIFIED — CHICAGO, ILLINOIS, U.S.A.

pen shown actual size

THIS IS ALL INK!...

49¢ and **59¢** Depending on model. Less in dozen quantities.

Whether you measure its capacity in miles of writing, thousands of words or grams of ink, the long-writing champ of office ball pens is the Autopoint CARGO Office Pen. In addition, ink supply is completely visible. Impossible to run out of ink accidentally. Turn-tip Point Protector and removable clip—included at no extra charge. No bothersome refills. Available in blue/black ink, red or green ink, Real-Thin Fine Point and Reproducing ink.

INK SUPPLY ALWAYS VISIBLE

KNOW WHEN INK IS **LOW**

Exclusive licensee under U.S. Patent No. 2,249,163. Other Pats. Pending

CARGO Office Pen is sold exclusively by Stationers—Not available elsewhere

Send Coupon for FREE SAMPLE of Autopoint CARGO Pen

Autopoint Co., Division of Cory Corp.
3200 W. Peterson Ave., Chicago 45, Illinois

Autopoint Co. Dept. No. 16
3200 Peterson Ave., Chicago 45, Ill.

Please send FREE CARGO Office Pen sample and information on how it "FIGHTS OFFICE EXPENSE".

NAME_____ TITLE_____

FIRM_____

ADDRESS_____

CITY & STATE_____

STATIONER_____

STATIONER'S ADDRESS_____

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Seven Developments for Municipal Sanitation

155 *Bulletin No.* 6043 reviews data on seven major and recent equipment designs and process developments in the field of municipal sanitation. Photographs, drawings, and descriptive sketches are included; range is from pre-assembled small waste treatment to a water desanding system. For your copy, write DORR-OLIVER INC., STAMFORD, CONN.

Cast Iron Pipe

156 Men who know pipe appreciate the qualities of strength, toughness, uniformity and durability fashioned into Clow Bell-Tite Joint cast iron pipe. With it, all-around economies are assured, as is long life in underground service. For details, write JAMES B. CLOW & SONS, INC., 201-299 NORTH TALMAN AVENUE, CHICAGO 80, ILL.

Versatile Material Handler

157 The R-18 "Moto-Bug" is a recently introduced multipurpose material handling tool that makes rapid on-the-job changes. Whether working as fork lift, gravity dump hopper, tailgate dump truck or on a snow removal job, it works efficiently and quickly. It is fully described in literature available from KWIK-MIX COMPANY, PORT WASHINGTON, WIS.

Centriline's conversation piece at the A.W.W.A. convention

Excitement ran high. Crowds thronged around the Centriline booth, eager to see and inspect this revolutionary new development for relining small diameter pipes in place. For years, large mains have been renewed by the famous Centriline Process of centrifugally applying a cement-mortar lining which permanently prevents future tuberculation, corrosion and leakage. Now, with the introduction of the new small diameter Centriline machine, every city's important transmission and distribution lines from 6" to 14" can also enjoy the same money saving protection. The new Centriline machine has a design feature which eliminates excavations at valves, laterals and corporation cocks. Through Centrilining, the pipes in your system regain their original flow capacity and pressure . . . pumping and maintenance costs are reduced and the line's life is extended indefinitely. Centrilining accomplishes all this with a minimum of interruption to surface traffic, since the pipes are lined in place. Send today for your copy of our illustrated brochure which fully describes how Centriline can help you salvage worn out lines of every size.

CENTRILINE CORPORATION

A Subsidiary of Raymond International Inc.

140 Cedar Street
New York 6, N. Y.
WOrth 2-1429

Branch Offices in Principal Cities of the United States, Canada and Latin America.

Defends Against Rust—Free Sample

158 Your municipal equipment can be painted and protected against rust in a single stroke. Bright, decorative Rust-Oleum colors make it possible. To convince you of this, the manufacturer is offering a free test sample of 769 Damp-Proof Red Primer. For your sample, and for a catalog of colors and application, write RUST-OLEUM CORP., 2690 OAKTON, EVANSTON, ILL.

Aerial Surveys Take the Guess Work Out of City Planning

159 Intelligent planning for your community's growth can be achieved with speed and economy by taking advantage of the services offered by AERO SERVICE CORP., PHILADELPHIA 20, PA. Accurate, up-to-date information for zoning and land use studies, planning of future sewage disposal, water main extensions, flood control, and a major street plan are some of the phases of city planning from which Aero removes the guess work.

Prevents Leaks in Sewer Pipe

160 Tighter and more lasting seal is assured in sewer pipelines when Press-Seal gaskets are specified. They prevent water and root infiltration, reduce costs by speeding installation, and permit pipeline contraction and expansion. For certain confinement, and for gaskets for every sewerage purpose, write PRESS-SEAL GASKET CORP., P. O. BOX 482, R. R. 6, COVINGTON RD., FORT WAYNE, IND.

Keeps Swimming Pools Algae-Free

161 The odds are in your favor that happier swimming times under more sanitary conditions will exist this summer at your community swimming pool if Hyamine 2389 is used regularly. This algae-killing chemical keeps water invitingly clear and swimming pool walls sparkling clean and helps control athlete's foot. For additional information, write ROHM & HAAS COMPANY, WASHINGTON SQ., PHILADELPHIA 5, PA.

Low-Cost Power for Municipal Needs

162 Enterprise engines excel on many points of service and performance. Whether used for electric power generation, water pumping, or sewage plant power, they offer fuel and oil economy, low maintenance, outstanding operation. With them, varied fueling is available; models range from 73 to 7703 hp. For details, write ENTERPRISE ENGINE & MACHINE CO., 18TH AND FLORIDA STS., SAN FRANCISCO 10, CALIF.

Guard Against Industrial Radiation

163 Because radio activity is now a part of present-day living, detection of radiation from all possible sources will continue to be a growing responsibility. To provide necessary protection, municipalities need accurate, sturdy equipment designed for this specific purpose. They will find portable Gamma-Beta meters from RIGGS NUCLÆONICS CORP., 717 NORTH VICTORY BLVD., BURBANK, CALIF., well suited for this work. For literature, write the company.

(See page 42 for more Bulletins)

Catalogs for You

Parking Meters That Satisfy

165 An increasing number of cities are installing Duncan-Miller parking meters. Why? Because they are accurate, dependable, and easy to maintain. Write for literature to DUNCAN-MILLER, INC., 1000 N. MAIN ST., SANTA ANA, CALIF.

Surveyor's Aid

167 The revised edition of W. & L. E. Gurley's service booklet on the use

up to 20 TIMES more POWERFUL

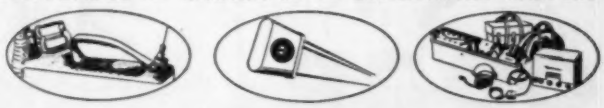
... rugged new TRANSISTORIZED design

much greater operating range . . . now you can have the greatly extended coverage and clearer messages you've always wanted. These new HANDIE-TALKIE portable radiophones are by far the *most powerful* portables ever built!

much smaller, much lighter . . . new circuits, transistors and subminiature components make them as much as 50% smaller and lighter—truly *portable* and easy to handle for hours without fatigue. The dry battery pack model weighs only an ounce over 7½ lbs.

much lower operating cost . . . dry battery replacement costs have been cut as much as 67%! With adaptor, rechargeable wet cell models can be operated from a car's 6 or 12 volt battery to conserve portable's battery. For semi-permanent installation, a 117VAC power pack is available. All power packs quickly snap in place, making changing easy.

AVAILABLE IN CHOICE OF 43 DIVERSIFIED MODELS



LOUDSPEAKER models available

TRANSISTORIZED greater operating efficiency

MANY ACCESSORIES for extra versatility

WRITE TODAY

Get the full facts on this power-packed portable. Ask for the 6-page folder which will help you select the HANDIE-TALKIE radiophone best suited for your requirement.

TRANSISTORIZED Handie-Talkie®
PORTABLE RADIOPHONE

...NICATIONS & ELECTRONICS, INC., 4501 W. Augusta Blvd., Chicago 51, Illinois
..., Inc.

MOTOROLA and HANDIE-TALKIE are registered trademarks of Motorola, Inc.

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

A Sweeping Savings

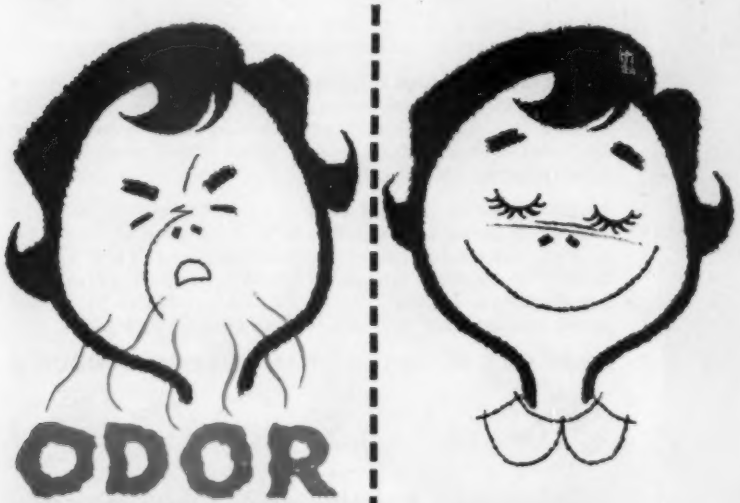
164 Let Permene help you stretch your street-sweeping dollars. This new synthetic brush filament for big street-cleaning brooms wears 3 to 5 times longer than natural fibres and keeps its lively pick-up action even in soaking rain. With it, fewer rewinds per year will be necessary. For hand sweeping, O-Cedar Push Brooms are the long-lasting type. For details, write INDUSTRIAL PRODUCTS, O-CEDAR DIVISION, 2246 WEST 49TH ST., CHICAGO 9, ILL.

Parking Meters That Satisfy

165 An increasing number of cities are installing Duncan-Miller parking meters as part of well-planned traffic control systems. Fully automatic or manual, each model gives all-around satisfaction. To learn more about them, write for a demonstration or free trial installation to DUNCAN PARKING METER CORP., 835 NORTH AND WOOD STREETS, CHICAGO 22, ILL.

Better Insect Control

166 You'll find the Dyna-Fog insecticidal fog generator a powerful ally in any insect control program. Although only 100 pounds in weight, this easy-to-operate unit does the work of heavier machines and is highly effective. For details, and information on the 19-pound Dyna-Fog Jr., write CURTIS AUTOMOTIVE DEVICES, INC., P. O. BOX 297B, WESTFIELD, IND.



ODOR COMPLAINTS! SOLVED ...with OZENE!

End odors—and the troublesome complaints they cause—quickly, easily, economically by using OZENE, the tested and proved material that controls odors two ways. OZENE's dual action (1) masks existing odors while it (2) attacks the causes of odors—sulphide-forming bacteria and mold microorganisms.

OZENE is currently being successfully used in:

- sewage, leather and rendering plants
- land-fill waste disposal projects
- dried milk, cheese, cannery and other food plants
- industrial lagoons
- new excess-capacity sewers
- drainage ditches
- incinerators
- storm sewers
- sewer breaks
- sludge de-watering
- fish-market areas
- refuse cans and trucks
- kennels, etc.

OZENE is a concentrated material and only small amounts are required for most applications. For odor-controlling sprays, OZENE can be diluted as much as 100-to-1.

Write specifying items desired (no cost):

1. OZENE test samples
2. Data on OZENE for odor control

If you have a special odor control problem, please describe it to receive our recommendation.

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N.Y.

Branch Sales Offices: Boston • Charlotte • Chicago • Cincinnati Cleveland • Detroit • Houston • New Orleans • New York • Philadelphia Pittsburgh • St. Louis • Syracuse

Surveyor's Aid

167 The revised edition of W. & L. E. Gurley's service booklet on the use and adjustment of alidades contains, for the first time, tables by which the field man can obtain horizontal distances and elevations from stadia readings. Detailed instructions on stadia surveying and use of the Beaman Stadia Arc as well as other helpful information are also included. For your free copy, write ALIDADE DEPT., W. & L. E. GURLEY, TROY, N. Y.

Combats Dutch Elm Disease

168 The valuable data on Dutch Elm sprays incorporated in *Bulletin No.* 1238 will help you halt the ravage of Dutch Elm disease in your community. Specifications of constituents of various formulations, recommended spraying times, dilution schedules, analysis of costs are all included. For your copy, write MICHELIN CHEMICAL CORP., 9045 VINCENT, DETROIT 11, MICH.

Quality-Controlled Cast-Iron Pipe

169 When you specify APCO cast-iron pipe, you get pipe that is quality-controlled from raw materials to finished product. These tubular units are available in long lengths and in diameters of 3 inches to 24 inches, in either bell and spigot, roll-on, flanged, or mechanical joints. For details, write ALABAMA PIPE CO., ANNISTON, ALA.

Modern Compaction Methods Builds Better Streets

170 Is the title of a valuable 52-page booklet that brings into focus current compaction problems faced by street construction men. Specific compaction problems are cited and equipment applications discussed. For your free copy, write ROAD MACHINERY DIV., BROS INC., 1057 TENTH AVENUE, MINNEAPOLIS 14, MINN.

Simplified Dust Control

171 No need for your community to explode in a cloud of dust every time there's a dry spell—not when Solvay calcium chloride is so readily available. Low-cost, odorless and colorless, this compound acts quickly to allay and prevent dust from rising. To learn where and how to apply it, ask SOLVAY PROCESS DIV., DEPT. 61-6, 61 BROADWAY, NEW YORK 6, N. Y., for its *End Dust* booklet.

Permanent, Maintenance-Free Fencing

172 With Nichols chain-link aluminum fencing, first cost is last cost, and full protection is assured. Rust-proof and long-lasting, this sturdy product requires no painting. Its many municipal applications are described in a booklet available from NICHOLS WIRE AND ALUMINUM CO., DAVENPORT, IA.

Improved Street Sweeping Brushes

173 Circular wire prush sections, permanent steel central core and reusable metal spacers are the basic components of a radically new rotary street-sweeping broom said to have 6 to 15 times the durability of conventional fiber or bamboo brooms. They may be used in street sweeping, airport cleaning, snow removal and street construction work, and are fully described in literature available from NEWARK BRUSH CO., 257 MICHIGAN AVE., KENILWORTH, N. J.

(See page 44 for more Bulletins)

1945
Cleveland (Tenn.) Police Department installs General Electric two-way radio

1954
County Sheriff's Patrol installs General Electric two-way radio

1955
Cleveland Fire Department installs General Electric two-way radio

1956
Cleveland power system installs General Electric two-way radio

Why did they all choose General Electric?

The answer is easy: Only General Electric's Progress Line gives you all three

—completely interchangeable plug-in chassis

—pre-tested, communication-type tubes for rugged mobile duty

—controlled reluctance microphones (in mobiles *and* base stations) for clearer voice transmission

—all at no extra cost!

Authorized General Electric service is available everywhere in the U. S.

Find out how your city can use General Electric two-way radio for more efficient municipal services. Call your G-E communications consultant, listed under "Radio Communication Equipment" in the Yellow Pages. Or write General Electric Co., Communication Products Dept., 168, Syracuse, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Use Northern Gravel for Rapid Sand Filter

Philip Kobie, Superintendent of this Water Plant in Berea, Ohio writes: "Prices quoted to us were very good and orders were shipped without delay. This was appreciated because we only had a limited time to do this job. We will recommend this company anytime to any and every one."

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Specialist in Municipal Maintenance

174 The 1¼-yard Model 75A Michigan is a versatile machine that specializes in municipal maintenance. Whatever its assignment—materials handling, backfilling trenches, transporting pipe, truck-loading sand, dirt or salt, pouring concrete—it brings needed power and maneuverability and does its job well. For details, write CLARK EQUIPMENT CO., CONSTRUCTION MACHINERY DIV., 2495 PIPESTONE ROAD, BENTON HARBOR, MICH.

Restores Pipe to Maximum Flow Efficiency

175 When sewer and water pipe need cleaning, let the experience and know-how of NATIONAL POWER RODDING CORP. work to your advantage. You'll find that their custom-made, heavy-duty power equipment manned by trained crews will bring about maximum pipe efficiency speedily and at less cost than "old-fashioned" methods. For details, write the company at 1000 S. WESTERN AVE., CHICAGO 12, ILL.

For Better Street Construction

176 From within the Buffalo-Springfield line of compaction equipment, municipal street construction crews will find the right machine for every compaction job—for base fill compaction, fine grade finishing, asphalt finishing and street rolling jobs. For full information on the type of equipment you need, write BUFFALO-SPRINGFIELD, SPRINGFIELD, OHIO.

Fast, Efficient Refuse Collection Traffic Paint

177 When you mark traffic lanes with Cataline Reflective Striping you eliminate smear and hard-to-see pavement markings, for this paint dries fast: won't track after 6 minutes; completely dry in 20. And equally important, it gives brilliant reflectorization that lasts. For additional information, write CATAPHOTE CORP., TOLEDO 10, OHIO.

Maintenance-Free Water Meter

178 If you're looking for an accurate, smooth-running water meter that is sensitive to low flows and maintenance-free, seek out the Rockwell Sealed Register Meter. It has only two moving parts in water; the rest are hermetically sealed and fully protected against corrosion and erosion. For full facts, write ROCKWELL MANUFACTURING CO., PITTSBURGH 8, PA.

Hydraulic Crane Cuts Costs on Many City Jobs

179 Just as Norfolk, Va. does, you can use an A-W hydraulic crane to increase the efficiency of your municipal operations. This 5-ton truck-mounted unit has a boom with a maximum extension of 34½ feet, a turntable rotation of 360°, and an elevation of 52° from horizontal. It is powerful and responsive, yet safe to use. For details, write AUSTIN-WESTERN, CONSTRUCTION EQUIPMENT DIV., AURORA, ILL.

(See page 46 for more Bulletins)

REDUCE CUTTING TIME

with the NEW MUELLER® CL-12 *Machine!*

■ Now — Mueller Co. has developed a fast, automatic drilling machine for making cuts from 2″ through 12″.

The new CL-12 Machine may be hand operated with a ratchet handle or power operated with the Mueller H-601 Air Motor or H-602 Gasoline Engine Drive Unit. No changes in the machine are needed to use either method of operation.

New design and new features also reduce set-up time. Automatic power cutting completely frees the operator for other work around the job-site. *Total on-the-job time is drastically cut!*

Write today or contact your Mueller Representative for full details on the new Mueller CL-12 Machine.

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

Over 500 American Cities are Cashing in on . . .

. . . and in foreign countries, too, it's the same story . . . MI-COs are consistently high producers because they are seldom out of order. Wherever installed, performance, maintenance and production records prove that MI-COs have everything you need in a parking meter. They may be set for any number of hours on various coin combinations, and one coin slot takes all denominations.

You can install MI-CO Parking Meters with confidence because they are manufactured by a concern with many years' experience. Then, too, there's the record of MI-CO Manuals in operation since 1935 that are still giving good service. *No question about it . . . MI-COs give you more for your parking meter dollars.*

With MI-CO's fast, dependable, tamper-proof Collection System, you can be sure of collecting every coin from every meter. There's no chance of pilfering because coins are channeled into a locked cart unseen and untouched by the collector. And the system is adaptable to MI-CO Manual Meters already installed.

Before you buy be sure to learn what MI-CO has to offer. Complete information on MI-CO Manual Parking Meters and MI-CO Collection System will be sent on request.

M / A B C

A Symbol of High Quality

MI-CO PARKING METERS, P. O. BOX 668-AC, COVINGTON, KENTUCKY

(The Michaels Art Bronze Co., Inc.)

OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Reversible Windows • Tablets • Memorials • Signs

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Full-Beam Hazard-Warning Light

180 To help you meet your hazard-warning needs, U-C-LITE MFG. CO., 1063 WEST HUBBARD ST., CHICAGO 22, ILL., makes available a new transistor-type barricade flash that has been built for heavy-duty work. Specially weather-proofed, and equipped with two directional head, this Big Beam Transista Flash Model 410 offers many safety and economy features. For details, write the company.

Newly Designed Asphalt Distributor

181 Each new design feature of Standard's Model 424-56 pressure distributor contributes substantially to the increased operating efficiency of this unit, which has been field-tested on all available types and grades of asphalt. All that is new about the 424-56 is described in *Catalog* #RS1256, as are capacities and mounts. For your copy, write STANDARD STEEL WORKS, INC., NORTH KANSAS CITY, MO.

Sweeps Streets Ultra-Clean

182 The Tennant 100 sweeps streets spic and span, picking up fine dust and dirt as well as heavy, bulky debris. Its short turning radius (9 feet 2 inches) and easy-handling design permit it to operate in areas impractical for larger, conventional units. For details on this vacuumized sweeper, write G. H. TENNANT CO., 751E NORTH LILAC DRIVE, MINNEAPOLIS 22, MINN.

Restores Sewers to Full Flow Capacity

183 When a Turco Maxi-Power Sewer Cleaning Unit goes to work, performance is quick, easy and thorough, and original flow of the sewer is restored. Available in two models, each with 3-speed transmission, these units provide exact power and line speed needed. They are described in literature available from TURBINE SEWER MACHINE CO., 1303 N. FOURTH ST., MILWAUKEE 12, WIS.

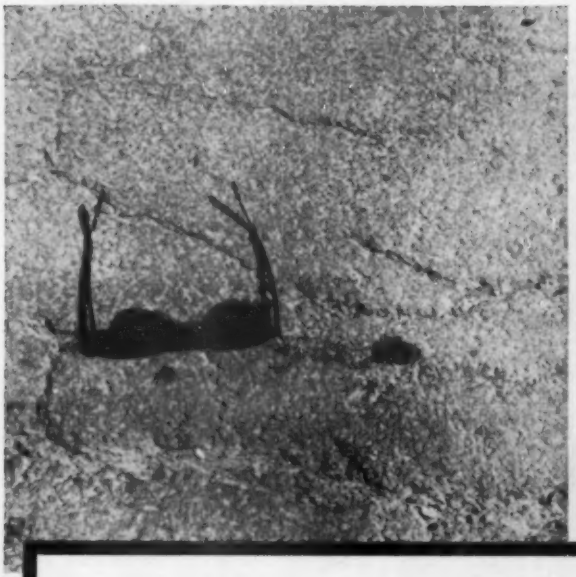
Trenching Machine for Municipal Jobs

184 The recently re-designed Parsons 310 Trenchliner digs up to 19 feet deep and 24 to 72 inches wide. It can carry dual booms and deposit 4 cubic yards of spoil per minute. Variable speeds and rugged construction permit its use on all types of municipal jobs. It is fully discussed in a 12-page catalog, available from PARSONS CO., NEWTON, IA.

Muffles Exhaust Noise to a Kitten-Like Purr

185 Diesel, gasoline and gas-powered engines can develop the power of a dozen locomotives while making no more noise than a kitten curled up in front of a fireplace, if equipped with Maxim Silencers. With them in use, nuisance noise around electric plants, water and sewage pumping stations, and sewage gas engines, throttles down to the merest whisper. These mufflers are available in a wide range of sizes. For details, write THE MAXIM SILENCER CO., 103 HOMESTEAD AVE., HARTFORD, CONN.

(See page 48 for more Bulletins)



BITUMULS SLURRY SEALS ARE REAL LIFE SAVERS*

For Pavements in Rochester, New York

*By permission of Beech-Nut Life Savers, Inc., for candies

LEFT: A typical section of pavement to be treated with Bitumuls Slurry Seal in Rochester. RIGHT: The same pavement section after treatment with Bitumuls Slurry Seal. (Note how the crack in the foreground has been sealed).

The City of Rochester, New York, was faced with a problem common to many communities today: keep all streets maintained in serviceable condition; yet do it at a cost that will permit the complete replacement (out of Maintenance Department funds) of many miles of streets that are over-aged.

Problem: How can you keep overall maintenance costs low enough to permit planned replacement of certain streets?

Answer: Bitumuls Slurry Sealing . . . a "life saving" technique for keeping distressed pavements in "good working order". Streets that were badly oxidized, cracked and open-textured due to a combination of age, heavy traffic, and winter weather were readily rejuvenated by the sealing, crack-filling and void-filling properties of Bitumuls® emulsified asphalt slurry.

Bitumuls Slurry Seals actually provided a holding action against wear and weather at extremely low cost. Savings over former methods were pronounced because very-costly winter patching of chuck-holes was completely eliminated. As a result, expenditures for repair and control of winter damage were **reduced by almost seventy percent!**

The money thus saved was diverted to reconstruction of streets that were beyond maintenance or repair.

Bitumuls Slurry Sealing is normally . . . and should be . . . regarded as only a **temporary treatment** for distressed pavements. Adequate repairs or pavement-replacement must eventually be made. Yet it is truly a "Life Saver", since it seals, protects and preserves any basically sound pavement against further deterioration until such a time as major repairs can be made, or the pavement can be replaced.

Typical view of the high-speed, high-efficiency Bitumuls Slurry Sealing in Rochester.

Your community, too, can benefit from the use of Bitumuls Slurry Seals. For further information on Slurry Sealing . . . or for the complete Bitumuls/Life Saver story . . . call our nearest office.

American Bitumuls & Asphalt Company

320 MARKET, SAN FRANCISCO 20, CALIF.
Perth Amboy, N. J.
Baltimore 3, Md.
Cincinnati 38, Ohio
Atlanta 8, Ga.
Mobile, Ala.
St. Louis 17, Mo.
Tucson, Ariz.
Portland 8, Ore.
Oakland 1, Calif.
Inglewood, Calif.
San Juan 23, P. R.

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

For Accurate, Trouble-Free Water Measurement

186 There are many reasons why Sparling Main Line Propeller Meters are popular with water works men. First, flow capacities and measurements are reliable and more useful with these meters. Second, their design minimizes corrosion and mechanical wear, insuring longer life. Write SPARLING METER CO., 229 NORTH TEMPLE CITY BLVD., EL MONTE, CALIF.

Quick, Efficient Sewer Cleaning

187 Even the toughest sewer cleaning jobs become simple when an O'Brien Sewerking goes to work. Its all-power operation makes this work safe, easy and low-cost. Municipal users of these machines are enthusiastic over results. To learn why, ask O'BRIEN MANUFACTURING CORP., 5632 NORTHEST HIGHWAY, CHICAGO 46, ILL., for its Sewerking Catalog.

Better Parking Lots

188 Your city gets better parking lots by better planning, the soundness of which shows up in reduced parking and traffic problems. The booklet *Parking Techniques* will guide municipalities toward designing better parking lots of any size or shape for cars, buses and trucks. It is available from HARRIS-BARRIER, INC., BOX 5826, INDIANAPOLIS 23, IND.

THERE'S A REASON WHY THEY CHOSE

The Self-propelled Mark-Rite LINE MARKER MODEL 9000

Is The Size Of Your City Represented Here?

If your city has 5 or more miles of traffic lines to paint...the most economical machine for your city is the MARK-RITE MODEL 9000 LINE MARKER...

Just as with the partial group of cities shown below, a map of the U.S. would show that cities using the MODEL 9000 MARK-RITE MARKER always run in clusters. The reason is simple.

Superintendents of neighboring cities check on each other's new equipment purchases.

It's always a safe bet that purchase of the MARK-RITE MODEL 9000 LINE MARKER, with *Automotive Steering, Automotive Clutch* and *Automotive Differential*, by one city, will lead to a new cluster of surrounding cities.

The Big Three A's....*AUTOMOTIVE* Steering • *AUTOMOTIVE* Clutch • *AUTOMOTIVE* Differential...*Makes the difference!*

- ECONOMY
- DESIGN
- VERSATILITY
- 25% MORE WORK PER DAY
- LONG STRAIGHT RUNS
- CURVES
- HILLS
- CONSTANT PAINTING
- 10 TO 60 GALLON CAPACITY
- SATISFIED OPERATORS

Mark-Rite MODEL 9000 Will Paint...

- SINGLE LINE
- DOUBLE LINE
- TRIPLE LINE
- ONE OR TWO COLORS
- SOLID OR SKIP LINE
- PLAIN & BEADED PAINT
- REFLECTIVE LINES

Write, wire or phone collect for demonstration, quotation, or catalog showing complete line of Mark-Rite Line Markers.

Unimasco, inc.

UNIVERSAL MANUFACTURING & SALES CO.

424 West Redondo Beach Blvd., Gardena, Calif. • DAvis 9-7528

Make Street Repair Easier, Permanent

189 Faster, less costly, more permanent street repairs are made possible by the Martin Patcher. Easily installed on any dump truck, this unit produces a smooth patch that stays put by using controlled compaction maintained by hydraulic pressure against the weight of the truck. For complete information, write MARTIN CO., 620 ANDREWS AVE., KEWANEE, ILL.

Public Safety— Warning Lights

190 With R. E. DIETZ CO. flare torches, lanterns and Visi-flashes, you can adequately light street and road hazards. For these boundary and illuminating lights contain the three essentials of good hazard warning: (1) they show what the hazard is; (2) outline the hazard boundary; and, (3) alert the approaching motorist. For full information on these lifesaving units, and for an authoritative manual on *Hazard Warning Lighting*, write the company at 114 LEAVENWORTH AVE., SYRACUSE, N. Y.

Helps Speed Office Work

191 Municipal personnel looking for ways to take the lag out of office routine will find the Documenter to be a real aid. This new electric typewriter, with keyboard restyled to make typing easier and to minimize errors, offers an unusual feature, the reverse tabulator. Also, it boasts one more key than is standard, yet provides more space between keys. For details, write UNDERWOOD CORP., ONE PARK AVE., NEW YORK 16, N. Y.

Convert Empty Drums into Waste Receptacles

192 The lids, and their suggested uses, described in *Convertible Lids for All Size Drums* provide an economical way to convert empty drums into waste receptacles that will help municipal plants comply with important local sanitary codes and fire prevention regulations. For your copy, write UNITED METALS CABINET CORP., 14TH AND LAUREL STS., POTTSVILLE, PA.

Increases Serviceability of Streets and Highways

193 Traffic loads are constantly increasing, and so it is imperative that streets and highways be built more durably and more safely. Steel and wire products greatly increase street and road serviceability. Just how, is the subject of a new booklet, available from AMERICAN STEEL AND WIRE DIV., UNITED STATES STEEL, ROCKEFELLER BLDG., CLEVELAND 13, OHIO.

Traffic Line Marking the Easy Way

194 Whether you select Reflector-Liner Model 12 or 16 to do your traffic striping, the job will get done economically and quickly, and clear-cut stripes —2 inches to 6 inches—will result. Both machines feature foot-controlled braking pressure and air-activated traction. For details, send for *Catalog* #W58, available from WALD INDUSTRIES, INC., HUNTINGDON, PA.

Slurry-Seal Aid for Distressed Streets

195 When streets signal SOS because winter weather, heavy traffic and age have left them badly oxidized, cracked and open-textured, an economical way to throw them a life line is to treat them with Bitumels Slurry Seals. This temporary treatment relieves distressed pavement by sealing against further deterioration until major repairs can be made. For details, write AMERICAN BITUMELS & ASPHALT CO., 320 MARKET ST., SAN FRANCISCO 20, CALIF.

(See page 50 for more Bulletins)

CASE HISTORY: How Badger PRP* helps communities meet rising costs without raising rates

*

Badger Planned Rehabilitation Program

increases water revenue 39.6%

from meters serviced in "roundup"

Increased revenue? *Really* lost revenue regained! A Midwestern community (name on request) stemmed an annual water revenue loss from old, inaccurate meters — turned it into water department *profits* with modern, accurate Badger meters.

Communities everywhere are joining in the Badger water meter rehabilitation program . . . the systematic replacement of outmoded meters or essential parts that robbed them of revenue.

Is your water department paying its way?

If not, it's time your community held its own water meter roundup — to end water waste from worn-out meters and parts, boost water department revenues, even help meet rising water department operating costs without raising rates. Send for our free booklet, "Take Five," a brief explanation of Badger's Planned Rehabilitation Program. And be sure to ask your Badger representative about our liberal water meter trade-in policy.

What makes the big difference in the meters Badger builds...

Exclusive Dovetail Thrust Roller Insert assures accurate registration

Case in point: Old style (A), with full length slot weakens chamber halves, makes them subject to distortion. New style (B) with 77% shorter slot retains original chamber strength and eliminates distortion. Dovetail design prevents shifting of insert but does not impair freedom of disc movement. Just one of many refinements in water meter construction available only with Badger's advanced meter design.

Water is vital

Badger Meters have conserved it better for over 50 years

Badger Water Meters

BADGER METER MFG. CO • 4545 W. Brown Deer Rd. • MILWAUKEE 18, WISCONSIN
OFFICES IN PRINCIPAL CITIES

GIANT for its size

Giant for work, speed-king for set-up and reading, ingenious for ease of operation...and as tough as they come for rugged field conditions.

In surprising and welcome contrast to full size performance is its neat, compact size: just 4½ x 6" overall.

With tilting screw and prismatic tubular level, at a price much lower than you would expect, the Wild N-10 deserves your consideration.

Write for Booklet N-10

N-10 SURVEYOR'S LEVEL

Full Factory Services

WILD HEERBRUGG INSTRUMENTS, INC.

MAIN AT COVERT STREET,
PORT WASHINGTON • NEW YORK
PORT WASHINGTON 7-4843

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Increase Traffic Control Services

196 ECONOLITE CORP. is now able to provide municipalities with more comprehensive services in the field of traffic control. New equipment, parts for traffic signals and controllers as formerly supplied by the General Electric Co., as well as maintenance, are included in the extended facilities available. For details, write the company at 8900 BELLANCA AVE., LOS ANGELES 45, CALIF.

Restores Sewers to Maximum Capacity

197 Completely clean! That will be the pronounced opinion of your municipality's sewer lines, after a Sewer Scooter has passed through them. One-man operated, and propelled by the movement of the sewage, this machine reduces cleaning time by 70 to 80%. For full details, write FITZGERALD ENGINEERING CO., INC., BOX 289, CORAL GABLES 34, FLA.

Lasting Traffic Paint

198 Parlon-based traffic paints are striping their way across the streets and byways of the nation because they are easy to apply, take hold and dry fast, and last. Added up, this means lower long-term cost. For details on these quality traffic paints, write HERCULES POWDER CO., 900 MARKET ST., WILMINGTON 99, DEL.

Custom-Engineered Fire Apparatus

199 The extreme precision and rugged stamina built into every piece of Mack fire apparatus result from custom-engineering, materials of the highest caliber, and ceaseless testing and checking by skilled craftsmen. If you are responsible for fire control equipment in your community, you'll want details on these quality products. To get them, write MACK FIRE APPARATUS, SIDNEY, OHIO.

Economical Brush Disposal

200 Long service life without excessive maintenance costs adds up to time and money saved. This is what Fitchburg Chippers offer, along with automatic feed plate adjustment, fast starts and stops, and all-around smooth, efficient operation. To meet those tough disposal jobs head on, ask FITCHBURG ENGINEERING CORP., DEPT. AC-68, FITCHBURG, MASS., for *Chips Dollars from Your Overhead.*

Police Cars All the Way

201 To help you meet your municipal police car needs, DODGE DIVISION OF CHRYSLER CORP., DETROIT 31, MICH., offers six highly advanced Dodge V-8's that let you select the engine option exactly suited to your requirements. In addition, each has tremendous road-holding and cornering ability, and provides extra stopping power and resistance to fade. Literature on the Dodge Pursuit is available from the company.

Refuse Collection Fast, Efficient

202 What are the features you look for in refuse collection trucks? Speed and efficiency? Economy in initial cost, operation and maintenance? Really big capacity? Sanitary and simple method? Hydro E-Z Pack offers them all. For details, write DEPT. E-Z 258, HYDRO E-Z PACK DIV., HERCULES GALION PRODUCTS, INC., GALION, OHIO.

(See page 54 for more Bulletins)

SHOUP VOTING MACHINES IN THE HEADLINES!

VOTES CAST IN 10 SECONDS

... Trenton [N.J.] Times

"... It used to take at least a minute or more for each voter ... but we've already had several [voters] complete the whole process in less than ten seconds."

2½ DAYS WORK REDUCED TO 2 HOURS FOR VOTING OFFICIALS

... Orlando [Fla.] Sentinel

"The machines proved to be a great time-saver ... the returns [for precinct 47] were in the registration office in the courthouse at 9 p.m. Two years ago ... the clerk and inspectors worked from 7 p.m. on Tuesday election night to 7 a.m. the following Friday to tabulate the votes."

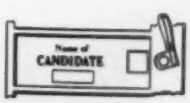
INSTANT RESULTS ON FACE OF MACHINE

... Winston-Salem [N.C.] Twin-City Sentinel

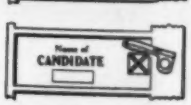
"The thing that the election officials liked about the [Shoup] machines was the method of getting the results. A moment after the polls closed, a seal on the rear of the machine was broken, a switch was turned, and—presto—totals for each candidate were available [on the face of the machine]."

Shoup exclusives speed voting... reduce voting costs!

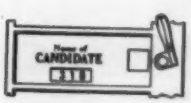
A. THE VERTICAL TYPE BALLOT!
see photograph above



B. THE MOVING [X] MARK!
As voter indicates choice, the familiar "X" appears alongside candidate's name! The voter sees his vote ... can't make an error!



C. INSTANTANEOUS RESULTS BY CANDIDATE'S NAME!
Total count appears on face of machine under candidate's name when machine is unlocked at close of polls. No decoding necessary ... hours of tabulating time saved!



25 states already use Shoup
...the Voting Machine that Looks Like a Ballot

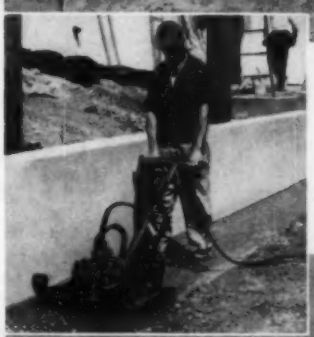
THE *Shoup* VOTING MACHINE CORP.
41 East 42 Street • New York 17, N. Y.

Reprints of news articles on request.

SAVE MONEY- SPEED ROAD JOBS!

GALION 503 MOTOR GRADER with VIBRATORY COMPACTOR

Now you can grade, spread material and compact fills and subbase courses with ONE machine. This combination of GALION Grader and Jackson Electric Vibratory Compactor easily, speedily and economically accomplishes most specified densities—often in one pass per lift. It leaves a smooth flat surface—no waves or "washboard" effect.



FOR SPOTS OTHERS CAN'T REACH

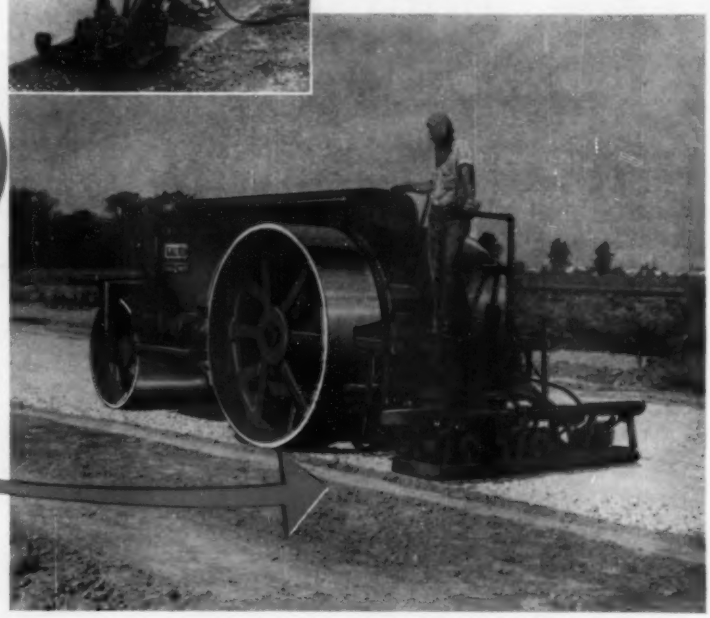
Individual compactor units may be detached and used as manually-guided, self-propelled compactors for confined areas.

Compactor power unit can be used as a lighting plant or for operation of small power tools.

GALION 3-WHEEL ROLLERS with VIBRATORY COMPACTOR

Either the "Chief" or "Warrior" model roller with Vibratory Compactor gives you both static and dynamic compaction with ONE machine. You get the compressing action of massive roller weight plus the consolidating action of vibration (4200 three-ton blows per minute).

So effective is this double compaction effort that the most rigid Federal and State density specifications (including Proctor, Modified Proctor, and AASHO-T99-49) are often attained in ONE pass per lift.



Write for complete information.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices—Galion, Ohio, U.S.A.

GALION ESTABLISHED 1907

MOTOR GRADERS & ROLLERS

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 381, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows: starting on Page 28.

115	125	135	145	155	165	175	185	195	205	215
116	126	136	146	156	166	176	186	196	206	216
117	127	137	147	157	167	177	187	197	207	217
118	128	138	148	158	168	178	188	198	208	218
119	129	139	149	159	169	179	189	199	209	219
120	130	140	150	160	170	180	190	200	210	220
121	131	141	151	161	171	181	191	201	211	221
122	132	142	152	162	172	182	192	202	212	222
123	133	143	153	163	173	183	193	203	213	223
124	134	144	154	164	174	184	194	204	214	224
										225

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title:.....

Address:.....

..... 6-58

A Listing of Your Business Connection is Important

To THE AMERICAN CITY'S Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 199, as circled below:

822	827	832	837	842	847	852	857
823	828	833	838	843	848	853	858
824	829	834	839	844	849	854	859
825	830	835	840	845	850	855	860
826	831	836	841	846	851	856	861

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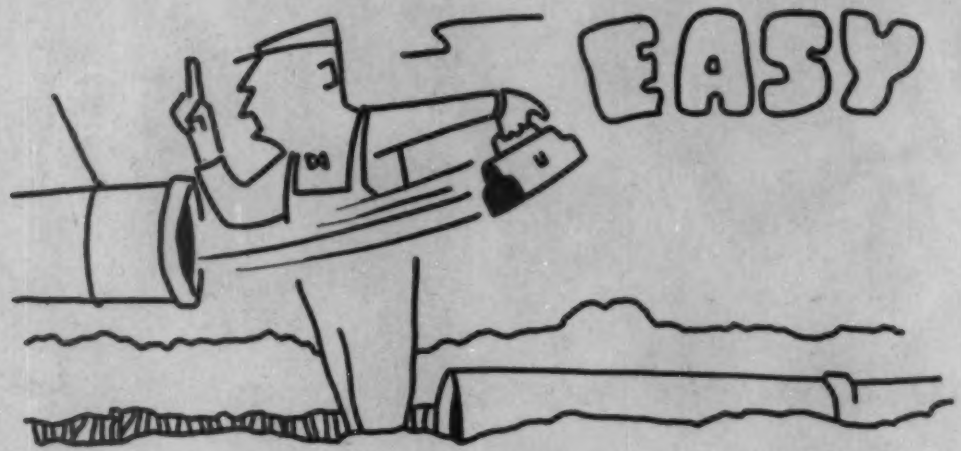
A Listing of Your Business Connection is Important

IT'S SO EASY



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FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

By Popular Request–

Sherman re-introduces its low cost "C" digger

1500 psi operating pressure
Control valves permit multiple cylinder operation simultaneously
Reach below grade 10', behind rear axle 14' 4", loading height 7' 2"
140° arc of swing
Self equalizing, independently operated stabilizers

in an improved model– the BOBCAT

There are many reasons why the "good old," dependable Sherman "C" was so well liked by excavators and why the new Bobcat will be even more popular—

- The Bobcat has a fast operating cycle, moves earth quickly and economically.
- The Bobcat is extremely stable particularly when working directly behind the tractor where 90% of all digging is done.
- The Bobcat digs close to the tractor, permitting easy maneuverability in tight places.
- The Bobcat is mounted close to the tractor controls, making it easy for the operator to change tractor positions and adjust throttle settings.
- The Bobcat will have a high trade-in value because used Shermans are in big demand.
- The Bobcat is sold and serviced by Ford Tractor Dealers so parts and service facilities are always close at hand.

Ask your Ford Tractor Dealer for a demonstration of the low cost Bobcat on *your* job.

Write today for Bulletin No. 1081

Sherman Products

SHERMAN PRODUCTS, INC.
Royal Oak, Michigan
POWER DIGGERS • LOADERS • FORK LIFTS
SOIL WORKING TOOLS • CRANES AND EXCAVATORS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

Smooths Out Municipal Gas Supply Problems

203 CB&I Hortonspheres open the way to more efficient gas service for your community. They provide peak load gas reserves, a ready gas supply at remote points, and help you meet growing use requirements without expanding plant facilities. For details on these high pressure gas storage tanks, write CHICAGO BRIDGE & IRON CO., 2127 McCORMICK BLDG., CHICAGO 4, ILL.

Discourages Water Waste

204 American meters work silently, accurately registering water use. Because they do, they discourage water waste. This, in turn, helps municipal water systems meet seasonal peak demands. For detailed information on these dependable water meters, write BUFFALO METER CO., 2902 MAIN ST., BUFFALO 14, N. Y.

Incinerator Charging Gates

205 Operational and construction features of charging gates for trash burning incinerators are described in *Data Sheet* GHa, just released by THE ALLEN-SHERMAN-HOFF CO., DEPT. AC, 259 E. LANCASTER AVE., WYNNEWOOD, PA. Cut-away drawings illustrate the discussion and an engineering drawing gives complete installation dimensions.

Thermoplastic Traffic Striping

206 Why Perma-Line for traffic line marking? Because this thermoplastic traffic striping material has real affinity for pavement surfaces. It applies and dries with incredible ease and rapidity, and its brilliance increases with use. For free, illustrated literature on this traffic safety material, write VEON CHEMICAL CORP., 22-09 BRIDGE PLAZA NORTH, LONG ISLAND CITY 1, N. Y.

Top-Performing Loader

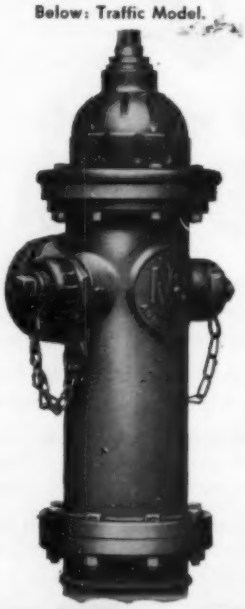
207 Observe the Case W-9 Terraloader in action. Notice how it digs deep, carries more, dumps faster—and with greater safety to the operator. See its three quick-change buckets custom-handle assigned jobs to reduce costs. For a free demonstration, or descriptive catalog, write J. I. CASE CO., DEPT. E1568, RACINE, WIS.

ALWAYS-READY GUARDIAN OF *LIFE AND PROPERTY*

MH

COMPRESSION TYPE FIRE HYDRANT

Above: Standard Model.
Below: Traffic Model.



Although an M & H Fire Hydrant may stand idle for years, without a moment's notice it functions perfectly. Its simple rugged design and careful manufacture from highest quality materials is the reason.

Large diameter, unobstructed waterway gives high flow efficiency when large volume of water is needed to fight fire. All operating parts are bronze or bronze bushed. Furnished either in accordance with A. W. W. A. specifications or Underwriters and Factory Mutuals approved; also either standard model, traffic model or flush type. For complete information, address

M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA

SUBSIDIARY OF W WALWORTH

Deals Quick Death to Flies and Mosquitoes

208 When warring against flies and mosquitoes, draft a Buffalo-Turbine sprayer-duster into service. It will help you deal quick death to both larvae and adult insects at minimum cost and with long-lasting benefits. For details, write BUFFALO TURBINE AGRICULTURAL EQUIPMENT CO., INC., 69 INDUSTRIAL ST., GOWANDA, N. Y.

Heavy-Duty Excavator Crane

209 A new bulletin from the CONSTRUCTION MACHINERY DIV., CLARK EQUIPMENT CO., BENTON HARBOR, MICH., fully discusses the Michigan Model T-24 excavator-crane. This 25-ton unit has a rugged air-controlled upper mechanism, versatile standard front-end attachments and is mounted on a Clark truck chassis built for heavy-duty crane service. For your copy of the bulletin, write the company.

Plastic Wash Trough for Water Filtration Plants

210 A wash trough, made of fiberglass-reinforced polyester-laminate plastic and designed for water filtration plants, is announced by F. B. LEOPOLD CO., INC., ZELIENOPLE, PA. Its glass mat is extra heavily constructed for added strength and plastic or stainless steel cross braces give it maximum rigidity. Corrosion and weather resistant, the trough is maintenance free and easy to install.

Hard-Working Motor Graders

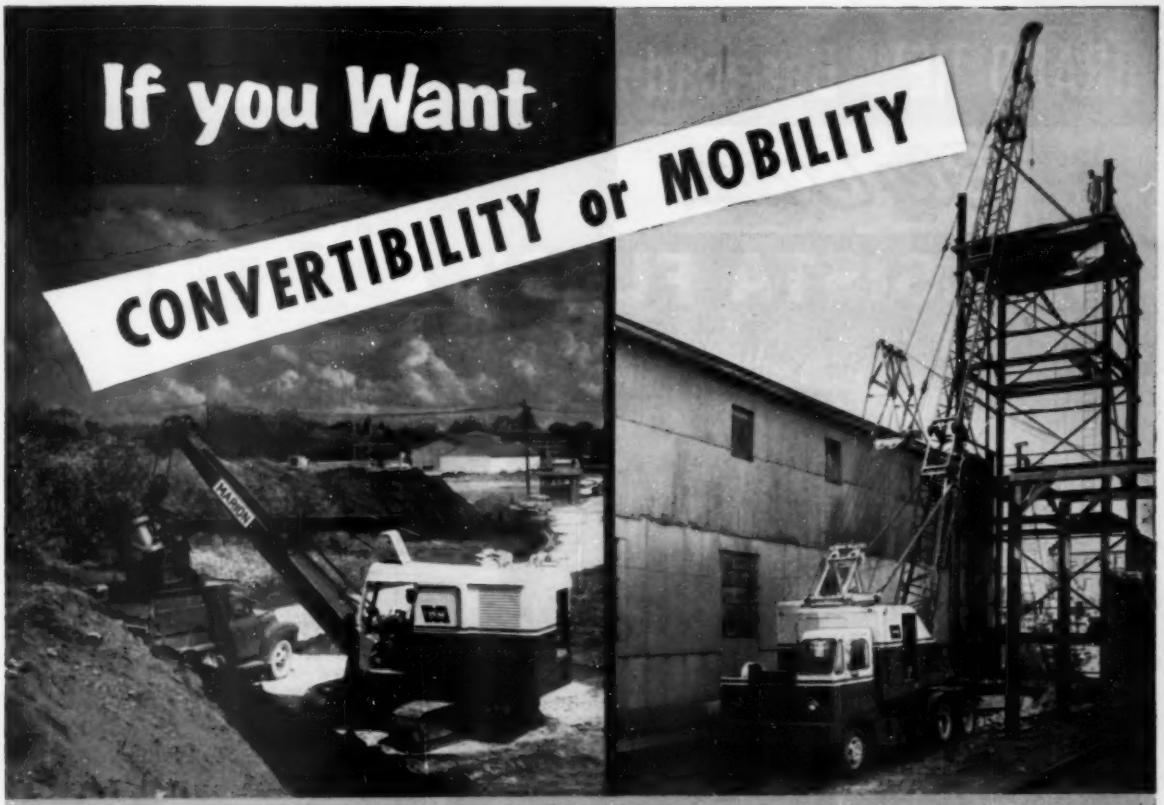
211 Mechanical controls that are fast, dependable and accurate, diesel engines that burn low-cost fuel, tubeless tires and full range of blade positions (without changing links or adjusting blade) are some of the reasons why Caterpillar motor graders do more work at lower cost with less down time. For complete information, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

Truck Scraper for Street, Alley Maintenance, Snow Removal

212 Unique feature of the new Root-44 undertruck scraper, effective in road and alley maintenance and for removing ice and packed snow, is the shock-absorbing capacity of the hydraulic system which operates the scraper's moldboard. For details, and other aspects of the F-44, write ROOT SPRING SCRAPER CO., 545 W. NORTH ST., KALAMAZOO, MICH.

(See page 56 for more Bulletins)

If you Want CONVERTIBILITY or MOBILITY



you'll buy a MARION

PROFIT FEATURES THAT MAKE THE DIFFERENCE

The 35-M, A Big ¾-Yard Machine!

- **CONVERTIBILITY**—fast, field conversion to all types front end equipment
- **COMPLETE AIR CONTROLS**—boost output substantially
- **WORM-TYPE BOOM HOIST**—positive, quick, safe power-up—power-down control
- **SELF-CLEANING CRAWLERS**—they clean as they work and travel
- **ANTI-FRICTION BEARINGS**—generously used for efficiency and years of low maintenance service
- **ADJUSTABLE HOOK ROLLERS**—keep wear at a minimum
- **OPTIONAL FEATURES**—torque converter, independent travel; high gantry

The 35-M Truck Crane, A Versatile 25-Ton Unit!

- **MOBILE**—37 mph speed holds time between jobs to a minimum
- **RUGGEDLY BUILT CARRIER**—highly maneuverable in every situation
- **FAST CONVERSION**—to dragline or clamshell operation
- **BIG OUTPUT**—air control gets more work done faster
- **STABILITY**—telescoping-type outriggers give more stability for extra heavy lifts; screw jacks optional
- **PERFECT SPOTTING**—independent boom hoist has power-up—power-down for safe, accurate operator control. Torque converter optional.

MARION

Whether you want convertibility or mobility, buy a Marion 35-M for the high performance, low maintenance and long life dividends you'll receive on every job.

MARION POWER SHOVEL CO.
Marion, Ohio, U.S.A.

Send us complete information on the ☐ *35-M truck crane,* ☐ *35-M.*

Name _____

Company _____

Address _____

City _____ Country _____

BRAND NEW Barricade Flash!

the Big Beam TRANSISTA FLASH

- **Transistor type, heavy duty for long, dependable life.**
- **No moving parts to get out of order.**
- **Two-directional head or 360° dome type Fresnel.**
- **Electronic flashing mechanism weatherproofed. Telescoping top and rubber gasket make battery case completely weatherproof.**
- **Acid-proof plastic liners prevent interior case corrosion.**

TRANSISTA FLASH produces approximately 2000 hours of continuous flashing from two standard 6-volt batteries, available anywhere. Provided with a concealed, tamper-proof switch operated from outside of case. Equipped with bracket for attaching to barricade. Lens or Fresnel supplied in either amber or red plastic—specify color. Flash frequency is approximately 72 times per minute. Lamp is finished in yellow baked enamel.

Model 410T

No. 433 Barricade—All metal, strong, stable on any surface. Has angle iron construction, closed ends.

Model 418T—with dome type Fresnel.

Model 417T—7 inch head. Otherwise, same as Model 410T.

Big Beam—makers of explosion-proof lamps, emergency lights, hand lamps and flares. 8393

U-C-LITE MFG. CO. 106 West Hubbard Street Chicago 22, Illinois

Export Department: 201 N. Wells St., Chicago 6, Ill. Cable Address: ENOTS
In Canada: Bernard Marks & Co. Ltd., 70 Claremont St., Toronto 3, Ontario

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

100% Kill of Filter Flies

213 Psycon liquid chemical assures almost 100% kill of larvae, pupae and adult filter flies found in trickling filter sewage plants. It is not harmful to bacteria and algae and does not adversely affect snails or BOD. For details, write NATIONAL DISINFECTANT CO., 2417 COMMERCE, DALLAS, TEXAS.

New—Big Capacity Front-End Loader

214 Hough has just marketed the first rubber-tired, front-end loader with a rated capacity of 2,500 pounds. This bigger, heavier tractor-shovel possesses many new design features that will contribute to ease of operation and maneuverability. For details, write THE FRANK G. HOUGH CO., 710 SEVENTH AVE., LIBERTYVILLE, ILL.

Tractor-Transport Hauls Equipment Safely, Quickly

215 There's a Haulette of the right size to move your light industrial equipment to the job site. Quick, safe hauling is assured by the unit's sturdy construction and easy-glide design, and driving that's hard on equipment and wastes man-hours is eliminated. For complete information, write HAULETTE DIV., FAYETTE MFG. CO., MORENCI, MICH.

Uniforms That Protect Police, Firemen

216 Police and firemen work at night in greater safety when outfitted in Master-Glo uniforms. The brilliant reflective power of these garments, achieved by an adaptation of Scotchlite in the form of outlining safety stripes, reduces considerably the chances of after-dark injury to these personnel. For details, write THE GEORGE MASTER GARMENT CO., LIGONIER, IND.

New Stationary Air Compressor

217 Recent addition to the Le Roi complement of air compressors is the new stationary 25S2, a 25-hp model rated for continuous performance at 175 psi. Small and compact, and also available at 125 psi, the 25S2 is ideal for applications requiring compactness, light weight and minimum operator attention. For details, write the SALES PROMOTION DEPT., LE ROI DIV., WESTINGHOUSE AIR BRAKE CO., MILWAUKEE 1, WIS.

Water and Waste Treatment Instrumentation

218 A full complement of Foxboro pneumatic controlling, recording and indicating instruments for water and waste treatment plants are discussed in *Bulletin* 1-15A in relation to application, operating efficiency, flexibility of control, construction and maintenance. For your copy, write THE FOXBORO CO., FOXBORO, MASS.

Tractor Power and Economy

219 Whether you employ the new, husky "440", the dependable "420", or the "820" diesel tractors for your constructon and maintenance operations, you get full power at low cost with easy operation and versatility. For details on both crawler and wheel-type models, and their matched equipment, write JOHN DEERE INDUSTRIAL DIVISION, MOLINE, ILL.

(See page 58 for more Bulletins)

HERSEY
WATER METERS
YOUR BEST BUY

Contact Nearest Branch or Home Office for Complete Information

HERSEY MANUFACTURING COMPANY

DEDHAM, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA
DALLAS — CHICAGO — SAN FRANCISCO — LOS ANGELES

RIGGS PORTABLE Log-linear, Gamma-Beta SURVEY METER

Model GB-1

For New Freedoms in Survey Work — No Other Instrument Needed, Gamma/Beta Log Linear — Fast Response Time!

Log-linear pressurized ionization chamber portable survey meter. Fast response time 0 to 1 mr/hr linear and two 3 decade ranges from .5 to 500 mr/hr, .5 to 500 R/hr. Mercury battery powered — 300 hr. continuous operation, one year intermittent. Allows fast lab monitoring of low level Gamma-Beta radiation with the linear range and incorporates two higher log ranges for general survey work. Energy dependence — flat to within ±10% from 80 KV to 1.2 Mev.

Features include fast linear response time (one linear range 0-1 mr/hr), ability to measure high radiation with two logarithmic ranges (.5 mr/hr to 500 R/hr), Gamma-Beta sensitive, compact case design, eliminates need for two separate instruments. Model GB-2, same as Model GB-1, less the Linear Range with two Logarithmic Ranges, .5 to 500 mr/hr, 5 to 500 R/hr. Model GB-3, same as model GB-2, but with one logarithmic range, .5 to 500 mr/hr.

RIGGS Remote Area Gamma Monitor (GA-3 Series)

A completely self-contained, independent system with pressurized logarithmic response ionization chamber. Model GA-3B has Mercury battery supply for 4 months continuous operation. Model GA-3BA same as GA-3B but with AC power supply failsafe to DC. Model GA-3A available in AC power supply only.

General Features and Specifications

Any continuous combination 3-decade logarithmic ranges from .01 mr/hr to 100,000 R/hr.

Energy Dependence
Flat to within ±10% from 80 KV to 1.2 Mev.

Alarm Control System
Meter relays DC manual (optional). Alarm relay rated 115V AC 2 amps.

Recorder Output
10 mv operated directly from output of unit.

Electronic Calibration
Complete circuit check of all ranges both ends of scale.

Write for free illustrated technical literature and price lists. Patents Pending.

RIGGS NUCLEONICS CORP.

717 North Victory Boulevard, Burbank, California

Catalogs for You

Write directly to the manufacturers or use Post Card, page 52

New Approach to Accurate Surveying

220 The new Warren-Knight Tele-Plumb and Plano-Shift is said to be the world's first optical plummet to permit setting of a Transit *under or over* a point by sighting through the instrument telescope, and without using a Plum Bob. For descriptive literature, write WARREN-KNIGHT CO., 136 N. 12th ST., PHILADELPHIA 7, PA.

Fiberglass Traffic Sign Supports

221 Lightweight, low-cost, maintenance-free fiberglass structures help simplify directional control of traffic. Available in both standard and heavy-duty overhead and cantilevered designs, these sign supports are weather and wind resistant and are said to have a strength/weight ratio higher than that of steel or aluminum. For details, write GAR WOOD INDUSTRIES, INC., FIBERGLASS DIV., 800 LOWELL ST., YPSILANTI, MICH.

Put Sewage Lift Stations Underground

222 If you follow the design principles outlined in the new bulletin published by ZIMMER & FRANCESCON, BOX 359, MOLINE, ILL., you can give your community a reliable lift station that is underground and out of sight. Designed by experienced engineers to meet your individual needs and factory-built by skilled workmen, these stations are ready to operate when delivered to your city. For your copy of the bulletin, write to the company.

Package Sewage Treatment Plant for 2000 Population

223 Through a combination of aeration, reaeration, settling and aerobic sludge digestion, compact SPARJER-Aerobic Process package plants completely treat sewage and sludge in an odor-free and trouble-free operation. They are especially suited for population loads of 2,000 or less, and are fully described in *Bulletin* 26-S-92, available from WALKER PROCESS EQUIPMENT INC., 840 N. RUSSELL AVE., AURORA, ILL.

Uses and Applications of Soil Cement

224 The practical aspects of soil cement stabilization, as related to street, highway, super-highway, parking lot and airport construction, are explained in a new booklet, the *ABC's of Soil-Cement Stabilization*, prepared by Pettibone Wood Mfg. Co. and available from PETTIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL.

How to Get More Work From Tractors, Graders

225 All public works officials should be interested in *Form* CR-609-H, a new booklet showing how municipalities are making better use of crawler tractors with attachments, compaction units, graders and power units. For your copy, write INTERNATIONAL HARVESTER CO., CONSTRUCTION EQUIPMENT DIV., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

what a payload!
so firm...
so big...
so fully packed!

It's a fact . . . the M-B Packer can give you full-capacity loads like this from your routes. Think of the time and money saved over old-fashioned methods of refuse and garbage collection. ▪ See the fast, safe, clean "push-out" rear unloading action. The same powerful packer plate that compacts the material pushes out the load completely with one movement. There is no time-consuming, messy manual clean-out of the body . . . no danger of the unit tipping on uneven ground. ▪ Notice, also, the *thorough* compacting job done by the M-B Packer. Garbage, leaves, debris, even bulky cartons . . . compressed solidly right to the top of the body. That means more tonnage per load . . . fewer trips to the dump or incinerator. Routes are finished faster and more blocks are covered each day. ▪ With M-B's foolproof, simple design, "downtime days" are practically eliminated and maintenance is fast and easy. There are no complicated, fussy hydraulic lines and valves . . . no intricate mechanisms to jam . . . just a powerful, top-to-bottom packer plate that squeezes the load to a solid, condensed mass like the one being dumped above.

M-B equipment for cleaner, safer living
8 Models of Line Markers to Fit Every Striping Job
Tractor-Mounted and Pull-Type Sweepers
Versatile Truck Loader with Powerful Jaw Action

SWITCH TO THE M-B PACKER NOW!

Simple design ▪ Controlled packing ▪ Greater safety ▪ Fits less expensive trucks ▪ Costs less to buy — less to operate ▪ Packs anything ▪ Simplified mounting ▪ Less downtime ▪ No counterweights needed ▪ Loads and unloads faster ▪ 12, 14, 16, 20 and 24 cu. yd. capacities ▪ New 38 cu. yd. trail-pack and container-loader-packer-system now available. Call your distributor now for full information!

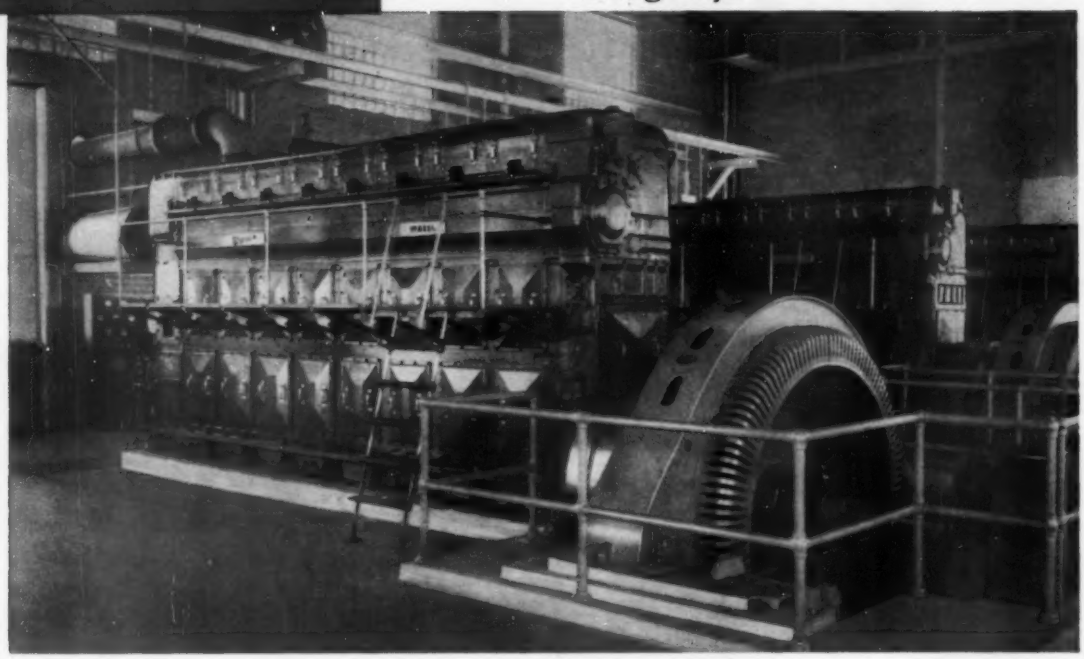
M-B Corporation, New Holstein, Wis.

M-B CORPORATION
NEW HOLSTEIN WIS.
MANUFACTURERS OF QUALITY MUNICIPAL AND CONSTRUCTION EQUIPMENT *since* 1907

Superior Engines...

give you all the proven benefits of simple design

Easy Operation
Efficiency
Economy
Dependability
Long Life



Extreme design simplicity distinguishes White's Superior engines. Relatively few cylinders and internal parts provide power equal to other engines having more cylinders and more complex construction. Such simplicity gives you many benefits. Superiors are *easier to start and operate*. The open chamber design achieves *efficient combustion* under all speeds and loads, giving *economical operation on non-premium fuels*. Fewer moving parts mean *fewer replacements and longer life*. Cylinder block design allows easy accessibility to internal parts for quick inspection and servicing. Hundreds of satisfied customers throughout the world repeatedly specify Superior Diesels for prime power, supplementary or standby power. Superior's simplified design proves its worth daily on municipal, public utility, construction, marine, oil field, and general industrial applications. Diesel, dual-fuel, and gas engines are available in the range from 225 to 2150 H.P.; portable or stationary generator sets from 150 to 1500 KW.

TYPICAL INSTALLATIONS

WOODSFIELD, OHIO: 1250 KW Model 80 dual fuel engine generator set.
ALBUQUERQUE, N. MEXICO: 250 KW Model 6G-825 gas engine generator set.
GRAETTINGER, IOWA: 500 KW Model 60 diesel engine generator set.
MILFORD, IOWA: 645 KW Model 60 dual fuel engine generator set.

WRITE TODAY FOR COMPLETE INFORMATION...

White Diesel

WHITE DIESEL ENGINE DIVISION

The White Motor Co. Plant and General Offices: Springfield, Ohio

SALES AND SERVICE POINTS: Ketchikan, Alaska; San Francisco, Terminal Island, Calif.; Denver, Col.; Washington, D. C.; Clearwater, Fla.; Chicago, Ill.; Wichita, Kan.; New Orleans, La.; Boston, Mass.; Baltimore, Md.; Park Rapids, Minn.; Webster Groves, Mo.; Callaway, Neb.; New York, N.Y.; Tulsa, Okla.; Portland, Astoria, Ore.; Hickory, Pa.; Ft. Worth, Houston, Texas; Seattle, Wash.; Calgary, Alberta; Vancouver, B.C.; Halifax, N.S.

AERO SURVEYS

take the guesswork out of city planning

AERO maps have greatly advanced city planning for Ottumwa, Iowa.

"Previously, we had to guess about drainage and ground elevations," says George C. Ahrens, Superintendent of Water Works and former Chairman of Ottumwa's City Planning Commission. *"AERO topographic maps enable us to determine and even design drainage facilities."*

The AERO survey is proving valuable in many phases of Ottumwa's overall city plan, providing accurate, up-to-date information for zoning and land use studies, planning future sewage disposal, water main extensions, flood control, and a major street plan.

speed . . . and savings

AERO maps enabled engineers to select the most economical route for relocation of two federal highways passing through the city. Said Mr. Ahrens, *"Had we relied on usual methods, it would have required years to get the maps, and surveying costs would have been astronomical. The AERO survey gave us the information in a matter of months at a fraction of the cost."*

Cities large and small, coast to coast, have benefitted from AERO mapping. We can help speed your city planning, too. Our experienced personnel and complete facilities can cut your mapping costs, and save valuable time for your own busy engineering staff. Let us meet with you.

AERO SERVICE CORPORATION

Oldest Flying Corporation in the World

PHILADELPHIA 20, PENNSYLVANIA

Offices in TULSA, SALT LAKE CITY, SAN FRANCISCO

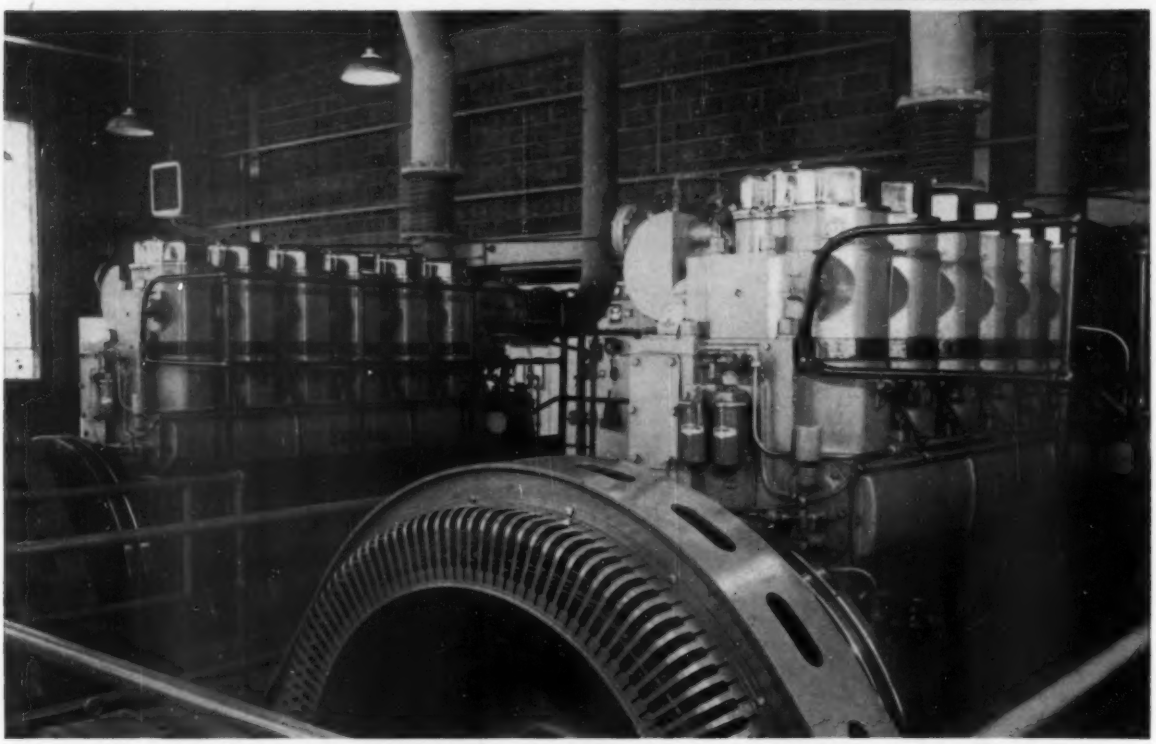
PRECISE AERIAL MOSAICS • TOPOGRAPHIC MAPS • PLANIMETRIC MAPS • RELIEF MODELS • TAX MAPS

"3 Reasons Why I'm Sold on Enterprise—

- ✓ ***Over 56,000 combined hours of outstanding operation!***
- ✓ ***A record of very low maintenance cost!***
- ✓ ***Exceptionally good fuel and lube oil economy!"***

Clifford Severson

Manager, Municipal Power Plant,
City of Barnesville, Minn.



Two Turbocharged Enterprise Diesels, with a combined capacity of 970 KW, provide Barnesville with all its electrical requirements.

An enthusiastic booster of Enterprise Engines, Cliff Severson rates his 6 year old power plant at just about perfect. On every point of service and operating performance, Mr. Severson points with pride to cost figures that would be the envy of any economy-minded power plant operator, municipal engineer or city official.

Enterprise specializes in engines for stationary and portable electric power generation, flood and water pumping systems, and sewage plant power. Versatile fueling is available in diesel, dual fuel and spark ignited gas engines. Models range from 73 to 7703 HP. Call the Enterprise sales engineer in your area, or contact factory for information or help with your plans.

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dependable **ENGINES**

Over a million horsepower at work the world over!

ENTERPRISE ENGINE & MACHINERY CO.
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New Orleans • New York • Pittsburgh • San Diego • Seattle • St. Louis • Washington, D.C.

Truck-mounted Austin-Western Hydraulic Crane shown removing heavy tree stump at Norfolk, Va. Boom has a maximum extension of 34½ ft., can be elevated 52° from the horizontal, and has a turntable rotation of 360°.

Austin-Western Hydraulic Crane cuts costs, increases efficiency and safety for City of Norfolk

Woodrow T. Keating, Automotive Maintenance Superintendent, Norfolk, Va., tells us: "The danger in removing tree stumps and other heavy objects has been a problem here for quite some time. In the past, this task was performed by a winch-type hoist or crane mounted on the body of an ordinary truck. As can be readily understood, when an object is secured by chains suspended from a beam, the danger exists that the chain will break, dropping the load in traffic, possibly periling human lives and damaging property.

"This danger has been completely eliminated by the use of the new truck-mounted A-W crane. Today we dislodge a tree stump with the crane, saw it into suitable sizes, and use the crane to load it into a dump truck for disposal. In a street widening project now in progress, stumps are being removed at the rate of over 80 per month. Norfolk is also busy replanting full-grown trees to maintain the beauty of the area. In both of these operations, the A-W crane is essential.

"The old method—carried out with the aid of an A-frame, winch and chain mounted on an ordinary truck—costs approximately $88 per day. The truck and operator together cost about $20 per day. In addition, a 7-man crew was required to carry out the operations, at a cost of about $68 per day.

"The truck-mounted A-W crane costs about $30 a day to operate. The 3-man crew needed costs an additional $30, a saving of some $28 per day over the old method."

A-W 5-ton hydraulic cranes are made in both truck-mounted and self-propelled types. Find out how they can increase the efficiency of your municipal operations. Or write us direct.

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

BALDWIN BLH LIMA-HAMILTON

"That's a smart question, son . . . and the answer is 'experience'."

Inside every Ludlow fire hydrant and every Rensselaer fire hydrant you'll find working and structural parts — developed through nearly 100 years of sound experience — that fill these four basic requirements for a perfect hydrant:

SIMPLICITY OF DESIGN AND OPERATION

ABSOLUTELY TIGHT CLOSURE

NO FREEZING

NO FLOODING DUE TO STANDPIPE BREAKAGE

All Ludlow and Rensselaer hydrants are built for easy, dependable operation and long life, despite rough treatment and the most severe climate conditions. They're engineered for *performance* and meet all A.W.W.A. specifications. That's why they've been "watchdogs" of American property since 1861!

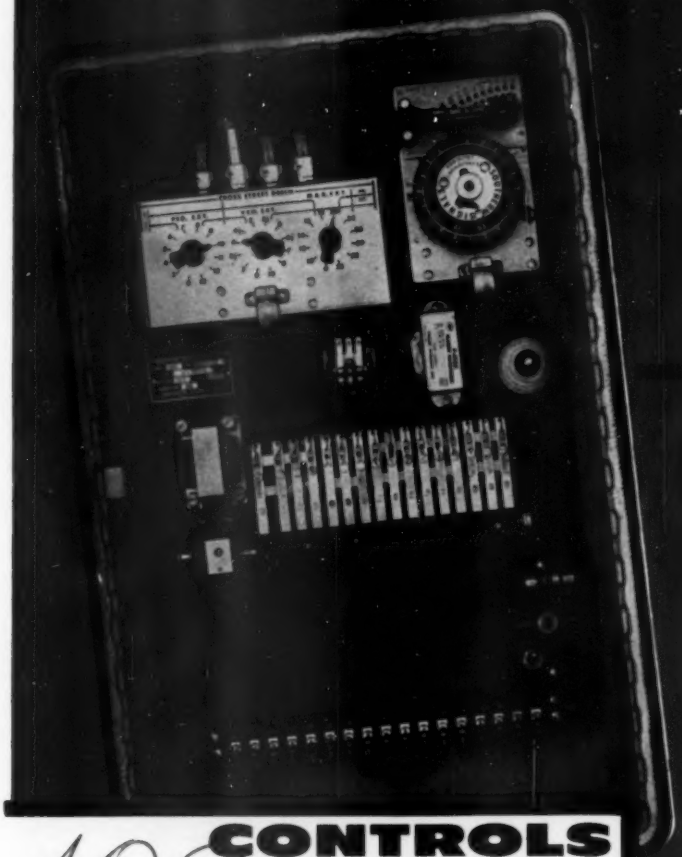
WRITE TODAY — for the L&R Fire Hydrant Catalogs, which show a model for every need.

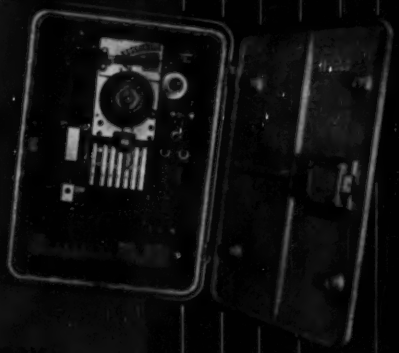
LUDLOW & RENSSELAER

VALVES AND HYDRANTS

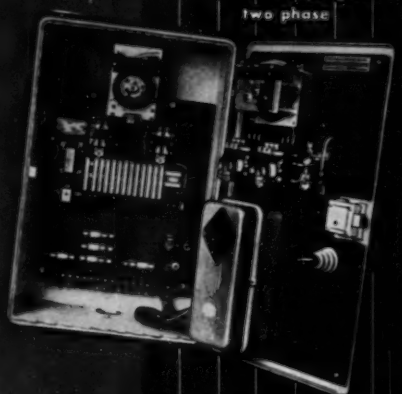
THE LUDLOW VALVE MANUFACTURING CO., INC., TROY, N. Y.–SINCE 1861

AUTOFLOW



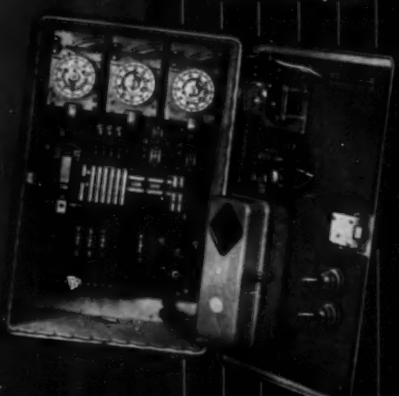


1025 — 6 CIRCUIT
single timer
one to three program
two phase



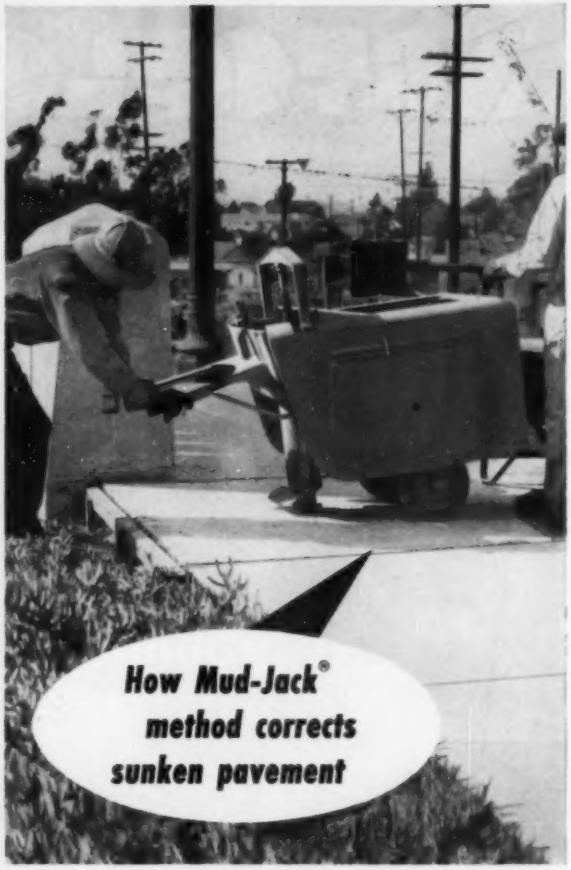
102L-NX NON-EXPANSIBLE
single timer
one to three program
two or multi phase

102 CONTROLS for Traffic Signals



102L-XP EXPANSIBLE
one to three timers
two or multi phase

SOUTHERN



Look at the flexibility and production you can get with Parsons® 250 Trenchliner® on sewer installations, water mains and other utility services. It produces from 3½ inches to 9¾ lineal feet of trench per minute — 16 to 42 inches wide, up to 12½ feet deep.

Undercuts walks, cross-pipes

Sloping, telescopic boom undercuts cross-walks, curbs, intersecting lines — or makes vertical set-ins flush against foundations — saves a lot of time and expensive hand clean-up.

Without swerving from grade-line, Trenchliner avoids trees, poles, other obstructions. Boom is shiftable across full width of machine, cuts within 12 inches of either side. (Wide carriage also takes dual booms for digging 5 feet wide, 8 feet deep.) In less than one minute, spoil conveyor power-shifts completely through machine — dumps to right or left. Arc of conveyor gives low-level, close-to-trench deposit — or reaches up to 6 feet-8 inches to load spoil into trucks (8 ft.-6 in. with conveyor extension). Want more facts? Contact your local Parsons distributor, or write us for 250 Trenchliner catalog.

Settled street and highway slabs, bridge-approach slabs, sunken sidewalks, curbs and gutters can be corrected without costly reconstruction. Koehring® Mud-Jack pumps soil-cement slurry under pressure into small holes drilled through the pavement. This displaces air pockets, water or water-saturated materials — raises the concrete slab, leaves firm, *permanent* sub-grade. But that's not all, while work is in progress, there's no need to close off walks or streets. Traffic isn't affected, and all of the usual construction materials and equipment needed to rebuild a section of concrete are eliminated. Work is done quickly, easily, at exceptionally low cost. Mud-Jack comes in 2 sizes for city and highway work. Ask now for a demonstration — or send for new 16-page catalog.

Read all about it ▶

Educational catalog on "Mud-Jack Method" illustrates by photographs, diagrams, charts how Mud-Jack works — shows its many applications. Copy of catalog is yours just for the asking.

K805C

PARSONS COMPANY • NEWTON, IOWA (Division of Koehring Co.)

KOEHRING DIVISION OF KOEHRING CO. Milwaukee 16, Wis.

Exclusive "K&M" FLUID-TITE Coupling is permanently water-tight, with self-energizing rubber coupling rings. Unskilled labor can assemble it in any weather, without the use of heavy machinery. It allows deflection up to 5°.

From Los Angeles, Cal. to Bar Harbor, Me.

Modern communities all over the country are joining the trend to the modern pipe—"K&M" Asbestos-Cement Pressure Pipe with FLUID-TITE Coupling

- Permanent, water-tight connections
- Non-tuberculating
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- Corrosion-resistant
- Long sections—fewer joints
- Pumping costs remain low
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Write to us today for more information on how this modern "K&M" Asbestos-Cement Pressure Pipe can cut your costs and time. And free you from maintenance worries.

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K·M
BEST IN ASBESTOS

A progress report—

Glen Canyon Dam Project to open vast new area

Work on huge Upper Colorado River Project well under way

When completed some six years hence, the giant Glen Canyon Dam, Reservoir and Powerplant Project will unlock the riches of a vast, 10,000-square-mile area.

The high concrete gravity arch dam, rising 700 feet from bed-rock, will contain 5,493,000 cubic yards of concrete. Power from the 900,000 KW power plant, located 470′ downstream from the dam, will make possible the development of huge resources of fuel, oil, minerals—including uranium—and timber.

When filled to capacity the 28,000,000-acre-foot reservoir will stretch 186 miles up the Colorado and 71 miles up the San Juan, a major tributary of the Colorado. Basically, this project is for river control and power generation.

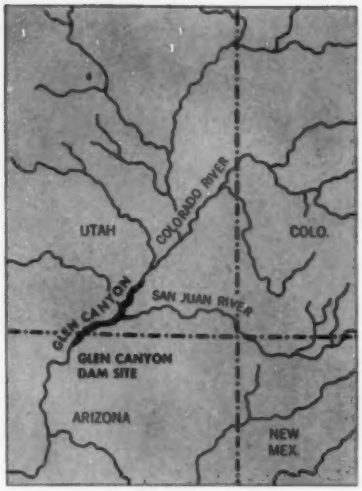
Largest single dam contract on record

The $107,155,222 contract for the Glen Canyon Dam and Powerplant, largest ever awarded by the U.S. Bureau of Reclamation, went to Merritt-Chapman & Scott Corporation, New York. On April 29, 1957, the day the contract was awarded, Merritt-Chapman & Scott signed a contract with Fairchild for aerial mapping of the dam site, reservoir and areas adjacent to the dam site. Flying operations began on May 5, *just six days later!* Advance copies of flying results were delivered on May 26. Other detailed data followed soon after.

Scale of maps for Glen Canyon

Reservoir: 1″ equals 400′, 10′ contours
Dam site: 1″ equals 50′, 2′ contours
Areas adjacent to dam site: 1″ equals 200′, 5′ contours

During the past 34 years, Fairchild crews have flown similar mapping assignments all over the free world. Results produced from this experience have led thousands of Fairchild clients to say... if you want it done *fast* and *right the first time*, you can depend on Fairchild.

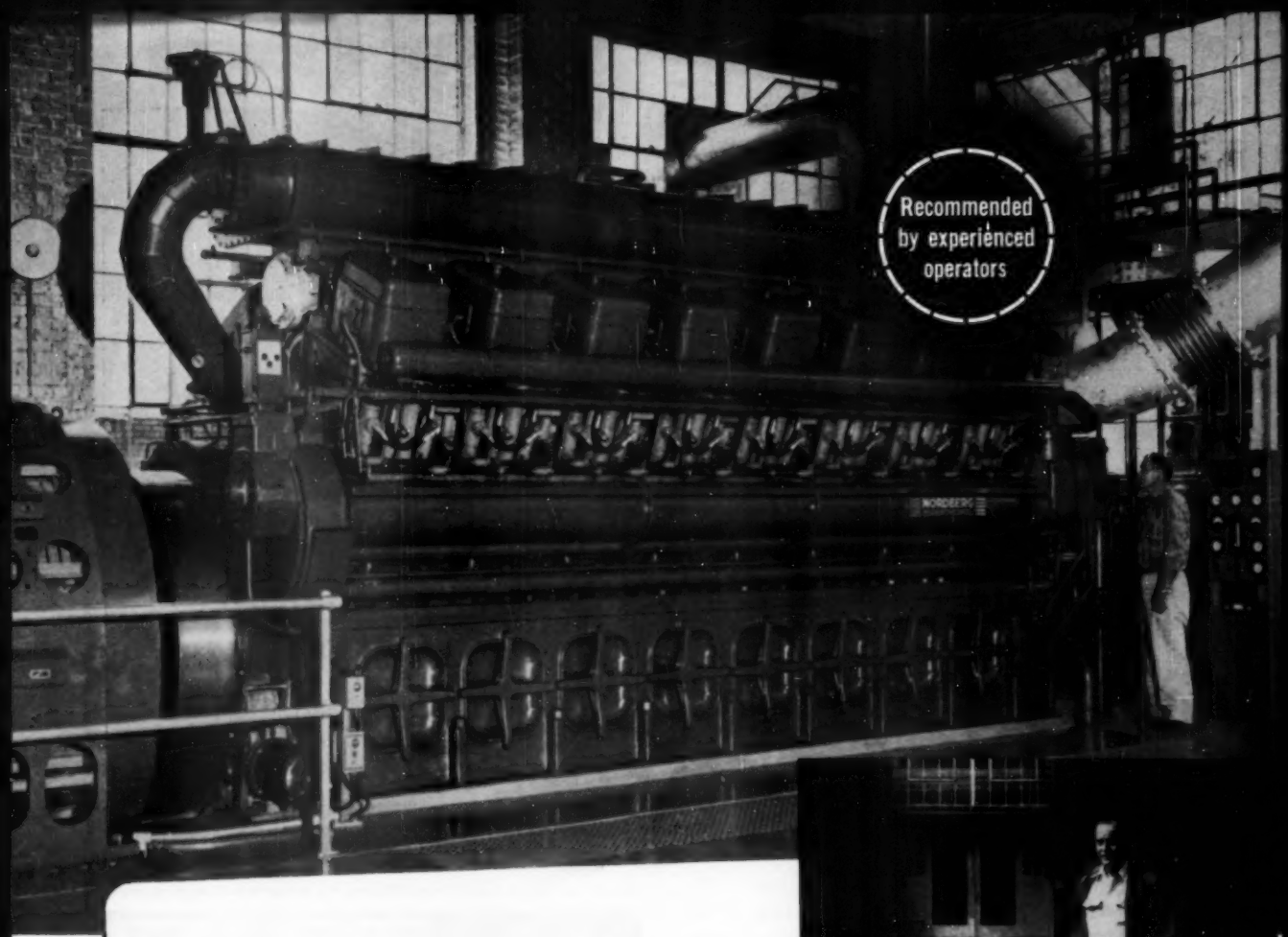


Site of the 700′ Glen Canyon Dam, second in height only to Hoover Dam (726′) is located 12 miles downstream from the Arizona-Utah border—370 miles upstream from Hoover Dam.

Walls of the canyon at the dam site are 650′ high with overhang in places. This necessitated flight paths parallel to the walls but offset to see under the overhangs.

FAIRCHILD AERIAL SURVEYS, INC.

Los Angeles, California: 224 East Eleventh Street • **New York, New York:** 30 Rockefeller Plaza • **Chicago, Illinois:** 111 West Washington • **Long Island City, New York:** 21-21 Forty-First Avenue • **Tallahassee, Florida:** 1514 South Monroe Street • **Boston, Massachusetts:** New England Survey Service, 255 Atlantic Avenue • **Shelton, Washington:** Box 274, Route 1 • **Houston, Texas:** 3325 Las Palmas • **Birmingham, Alabama:** 2229 First Ave. North



"Neodesha has now installed their sixth Nordberg engine ...all are giving a good account of themselves..."

...says Mr. Everett Powell,
Superintendent,
City of Neodesha, Kansas

Mr. Powell writes: "*The City of Neodesha has now installed their sixth Nordberg engine since 1922—all are giving a good account of themselves. Our newest, a 3150 B.H.P. Nordberg V-16 Supairthermal Duafuel unit, has been operating very satisfactory and we expect the same excellent service as recorded by our prior installed 1750 B.H.P. Duafuel unit. Our recent overhaul on this 1750 B.H.P. unit showed that rings and bearings still did not need replacement after 40,000 hours.*"

Here, then, are more reasons why Nordberg engines are recommended by experienced power plant operators . . . more reasons why there are so many *repeat* orders for Nordberg Diesel, Duafuel®, and Spark-Ignition Gas engines. Next time consult Nordberg on your power study . . . builders of a full range of engine sizes from 600 to over 12,000 hp. *NORDBERG MFG. CO., Milwaukee, Wisconsin.*

Installation Data:

1922—Installed 2 Nordberg 550 hp engines in Neodesha plant.

1934—Installed Nordberg 880 hp engine.

1946—Installed Nordberg 1620 hp engine.

1952—Installed Nordberg 1750 hp engine.

1956—Installed sixth Nordberg engine . . . a 16-cylinder V-type Supairthermal® Duafuel engine rated 3150 bhp, 2250 kw.

NORDBERG

DIESEL • DUAFUEL® AND SPARK-IGNITION GAS ENGINES

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P757

67

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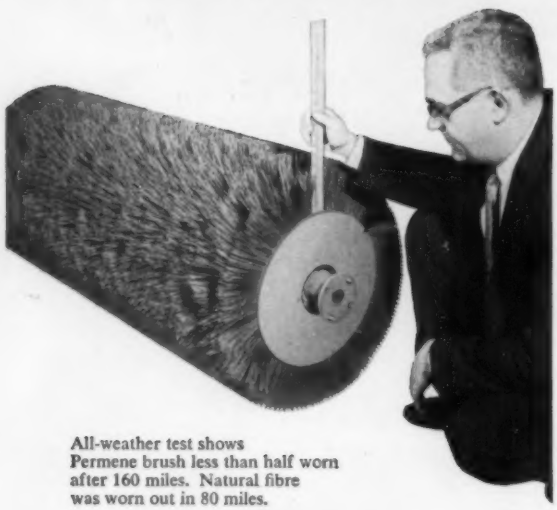
"PERMENE GIVES US 4 TIMES AS MANY SWEEPING MILES"



All-weather test shows Permene brush less than half worn after 160 miles. Natural fibre was worn out in 80 miles.

With big-city users, the swing is to PERMENE —a new synthetic brush filament that wears 3 to 5 times longer than natural fibres—keeps its lively pick-up action even in soaking rain.

Exhaustive tests have confirmed this greatly increased sweeping mileage—resulting in fewer rewinds per year.

Because it is synthetic, Permene can be provided promptly, in any length, any gauge—to your exact specifications. This is the time to cut sweeping costs . . . Permene will help you do it!

O-Cedar PUSH BROOM
for more economical street sweeping

Permene-fibre street broom is of lightweight yet sturdy construction. Lasts far longer. Test it and see!

For complete information, write to:

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DIVISION OF AMERICAN – MARIETTA CO.

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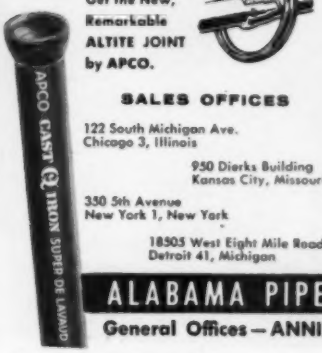
CAST IRON PIPE By APCO

Quality Controlled from raw materials to finished product through exacting metallurgical, chemical and physical test.

Modern long lengths in sizes 3" to 24"–Bell and Spigot, roll-on, flanged and mechanical joint.



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BATHEY SURVEYOR STAKES AND IDENTIFICATION CAPS

- A Permanent Marker
- Professional Advertising
- Dip Needle Response
- Five Lengths 3", 18", 24", 36", 48"

STANDARD CAPS

MBC

BENCH MARK

Permanent Solid Brass Marker for Setting in Concrete

HEAD 2¼" Dia. ⅛" Thick

B-13

WRITE FOR LITERATURE

BATHEY MFG. CO.
100 S. MILL STREET PLYMOUTH, MICH.

Blaw-Knox slip form Widener at work on DuPont highway outside New Castle, Delaware. The contract, let by Delaware State Highway Department, calls for widening a 6¼ mile stretch of roadway from 20 to 24 feet. Bituminous Mix will be used for resurfacing.

Blaw-Knox slip form Road Widener places 72 yards of low slump concrete per hour on Delaware job

New slip form attachment eliminates setting of forms

"This Blaw-Knox Road Widener made it possible for our 14-man crew to complete this project in seven days. Without it we would have used the conventional method of widening – the setting of forms – which would have greatly increased the man-hour requirements. As it was, we finished the 6¼ mile stretch in seven days," says Webb Blevins, Job Superintendent, Wilson Contracting Company, New Castle, Delaware.

Plenty of power was demonstrated when the Blaw-Knox Road Widener pushed a 16-ton load up a considerable grade with "absolutely no loss of speed," Mr. Blevins adds. "Using the Blaw-Knox Road Widener, we placed 15 feet of 4 feet wide – 8 inch thick concrete every minute."

Engineered Blaw-Knox equipment such as the Road Widener, built for heavy duty performance is helping contractors everywhere to slash costs and build profits on construction jobs. Your Blaw-Knox distributor can give you all the details on the Model 95 Widener. If you would like a technical report on Wilson Contracting's experience, ask your Blaw-Knox distributor for a copy, or write the factory. No obligation of course.

BLAW-KNOX

BLAW-KNOX COMPANY

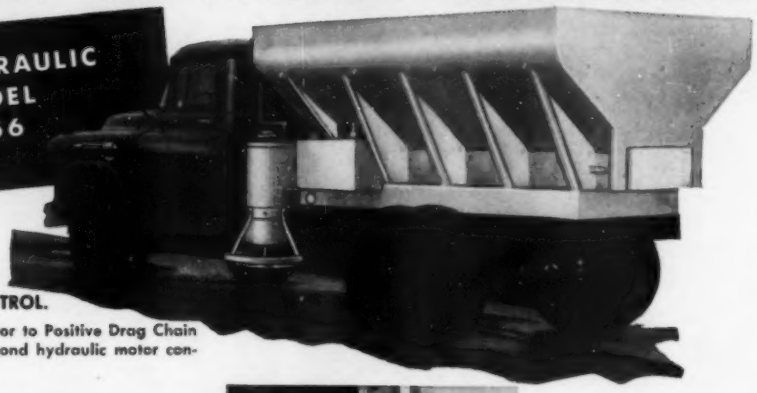
Construction Equipment Division

30 Charleston Avenue, Mattoon, Illinois

BAUGHMAN SPREAD-MOBILE

the Spreader that's Better ...for ice control Because...

HYDRAULIC MODEL FS-56



1. IT OFFERS COMPLETE HYDRAULIC CONTROL.

Speed of discharge from Drag Chain Body Conveyor to Positive Drag Chain Cross Feeder is controlled by hydraulic motor. Second hydraulic motor controls speed of distribution, and width of spread.

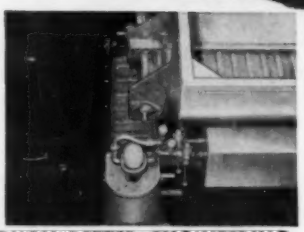
2. EXCLUSIVE "CENTER-SPRED" DESIGN.

Permits spread in front of all four wheels; improves traction, visibility and pattern.

3. ONE-MAN CAB CONTROL.

Width of spread, amount of spread, starting, stopping—all are at driver's finger tips. Driver also controls "Safety Baffle" which dampens spread when approaching pedestrians or cars.

WRITE for illustrated Brochure A-408-B.



New positive drag chain cross feeder, coordinated with main body drag chain conveyor, assures positive flow of material to side mounted distributor.

BETTER SERVICE THROUGH BETTER ENGINEERING
SERVICE AND PARTS FROM 200 SERVICE BRANCHES

BAUGHMAN

BAUGHMAN MANUFACTURING COMPANY, INC.

143 SHIPMAN ROAD • JERSEYVILLE, ILLINOIS

Douglas COLLAPSIBLE VOTING BOOTHS

1 to 5 Stall

Save Space
Save Expense

metal storage case holds up to 5 booths

Douglas Collapsible Voting Booths stand 6'2", width and depth both 28". Bright red, white and blue striped canvas front curtain. Booths easily extended and set up. Master stall collapses to 6'2"x2" x 2". Steel construction, aluminum shelves. Above model available in all aluminum this year.

WE HAVE SUPPLIED VOTING EQUIPMENT TO THE MAJORITY OF LARGE CITIES IN THE U.S.A. DURING THE PAST 50 YEARS. WE ARE HAPPY TO ANNOUNCE PORTLAND, OREGON AND MULTNOMAH COUNTY, HAVE BEEN ADDED TO OUR LIST OF CUSTOMERS.

OTHER Douglas ELECTION EQUIPMENT

- Uni-Pack Collapsible Voting Booths
- All-Metal Folding Booths
- Collapsible Ballot Boxes
- Collapsible Election Tables
- Jury Wheels
- Rigid Ballot Boxes
- Voting Booth Lights

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DEPT. J, Crete, Nebr.

Serving the 48 states, Hawaii and Puerto Rico since 1910

Where you want nothing to grow

SS WEED-KILLER

Gets them *fast*
Gets them *all*
Keeps them *off*

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . .

Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

Write for free, up-to-the-minute booklet on weed control. See your Dolge Service Man

Dependable DOLGE
WESTPORT, CONNECTICUT

J. L. GEIST, Sec'y of the Borough of Danville, Pa.

THIS NATIONAL SYSTEM supplies a complete, printed record of all transactions to the Borough of Danville and, as a result, has greatly reduced the time necessary to keep records posted to date.

"Our *National* System saves us $2,248 a year... gives pleasing service to public."—Borough Office

Danville, Pa.

"We simplified our record-keeping set-up greatly by installing a National System," writes J. L. Geist, Secretary of the Borough of Danville. "Our National supplies us with complete up-to-date records that are always immediately available for inspection.

"Property owners in this borough like the service our National gives them. It guarantees that their payments have been certified and the money must be accounted for. It also provides them with printed receipts for their personal records. In this way our National System controls all cash received by the Borough Office.

"By reducing record-keeping costs and increasing our over-all efficiency, our National System saves us more than $2,248 a year, gives pleasing service to the public."

Secretary, Borough of Danville

Your office, too, can benefit from the time- and money-saving features of a National System. Nationals pay for themselves quickly through savings, then continue to return a regular yearly profit. For complete information, call your nearby National representative today. He's listed in the yellow pages of your phone book.

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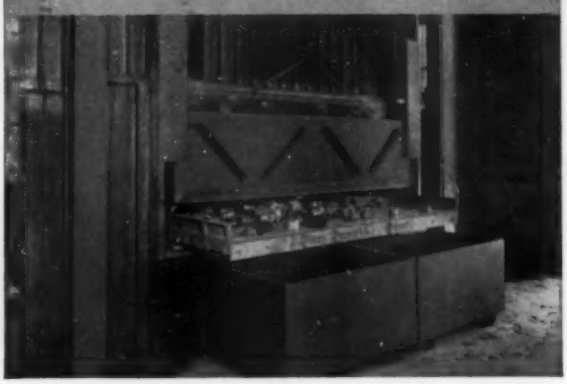
A PLIBRICO INCINERATOR

WITH THE COMBUSTIKATOR STOKER



COSTS LESS TO BUILD, OPERATE, MAINTAIN

You can cut the size of your incinerator building by a full story . . . and save accordingly . . . when you specify a Plibrico Incinerator equipped with the effective new Combustikator stoker. Tried and proven at Skokie, Ill., this stoker provides automatic ash discharge, eliminating the need for costly, space-consuming ashpits . . . hence the full story saved. Additional savings can be realized on the cost of the incinerator itself, the amount varying with the type of ash handling system you prefer.

Operational savings can be affected through reduced man-power, for in addition to automatic ash discharge, the Combustikator has a stoker surface that's self-cleaning.

From the maintenance standpoint, the anchored monolithic lining of a Plibrico Incinerator is more durable than ordinary fire brick construction. It's the joints that cause trouble and needless expense, and a Plibrico lining doesn't have those countless joints.

Plibrico designs incinerators for municipalities of all sizes. Discuss your needs with us or with your local Plibrico distributor. Find out more about the advantages above, and many others as well. To effect the greatest savings, do it before you finalize your plans.

Plibrico INCINERATORS

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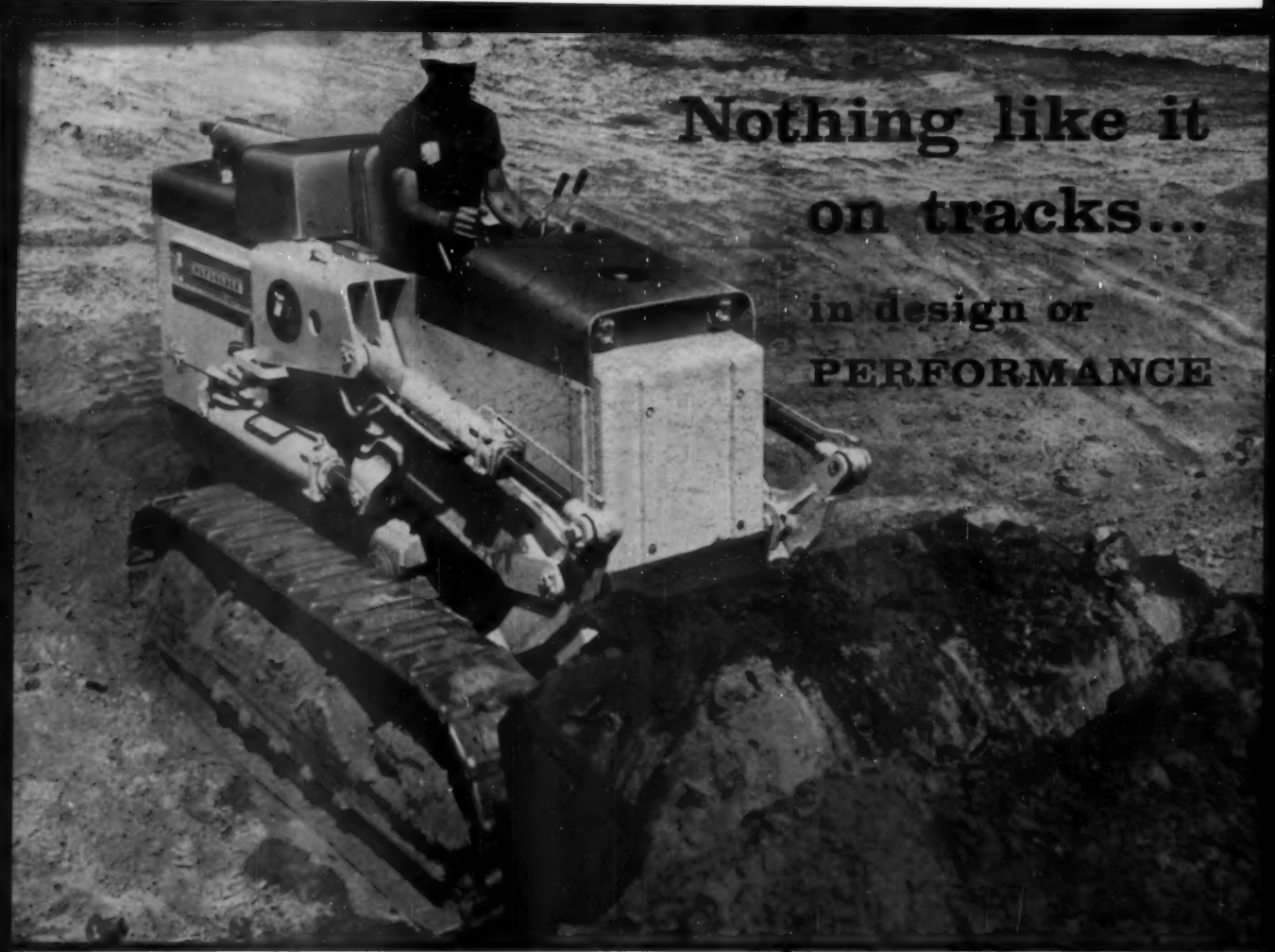

model 12 PAYLOADER®

Years of Hough development and testing bring you this model 12 "PAYLOADER" that is years ahead of the field. It's the first built-as-a-unit tractor-shovel, completely designed for shovel work instead of a tractor attachment. It outperforms much larger units and is a driver's dream in ease-of-operation, easy riding, visibility and safety.

BALANCE Engine-at-rear is the basic difference. It spreads the weight of the machine and load over the entire track lengths instead of concentrating it on the front idlers. Result — more traction for digging, more stability for faster carrying, smoother riding, less track maintenance . . . PLUS the ability to work in soft spots where others would bog down.

SPEED Power-shift transmission and power-steer permit instant on-the-go shifting and steering that is fast and almost effortless. There's no pulling and pushing, no foot brakes. There is instant response and speeds up to 10 mph forward *and* reverse.

VISIBILITY Driver is comfortably seated up front where he can see what his bucket is doing and where he is going. He is also spared the bouncing action of conventional rear-seated locations.

For tractor-shovel performance and ease of handling like you've never seen before, ask your Hough Distributor about the model 12 "PAYLOADER". Ask him about Hough Purchase and Lease Plans too.

Modern Materials Handling Equipment

THE FRANK G. HOUGH CO.

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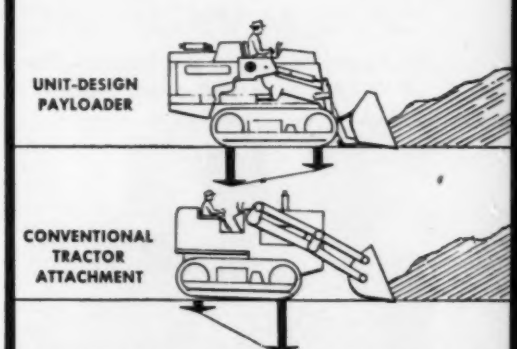
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Rear engine mounting distributes weight over entire track length . . . gives you more traction and stability for digging, carrying and dumping.



THE FRANK G. HOUGH CO.
710 Sunnyside Ave., Libertyville, Ill.

Please send more information on the outstanding 1¾ cu. yd. model 12 "PAYLOADER".

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Company _____

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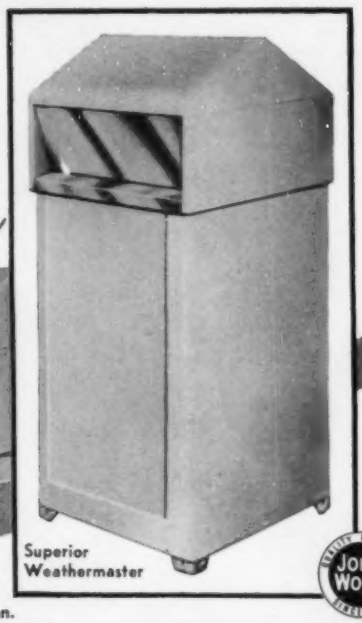
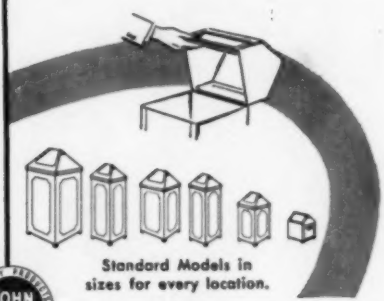
THE SUPERIOR WAY to invite cleanliness and cut clean-up costs



Superior Weathermaster

Exclusive new top with two full-width independently operating flaps that swing in and keep rain out. Give faster, safer waste disposal. Hinged top folds back for easier emptying.

Available with stainless steel or painted flaps in choice of colors. Stainless steel legs give longer life. Sturdily built. Low cost.



Standard Models in sizes for every location.

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Superior Manufactures Wire Crates For Paper And Glass Bottles • Milk Cans • Cream Cans • Hooded And Open Pails • Strainers • Other Metalware For The Dairy Industry And Solar-Superior Waste Receptacles.

ALUMINUM WALKWAYS ARE SAFE, MAINTENANCE-FREE

Non-Corrosive, Strong and Durable—They are Valuable Assets in Water and Sewage Plants

George H. Hill, Washington Aluminum's New England representative, points out the grating's patented perforation pattern.

Washington Aluminum Walkways *provide* a lifetime of maintenance-free service—never need painting, resist rust and corrosion, provide ventilation. Their strength lies in the I-beam extrusion.

Washington Aluminum fabricates grating and other installations to specification. Consult our Engineers at point of planning. . . . No charge—no obligation! . . . an engineering service of Washington Aluminum Company, Inc.

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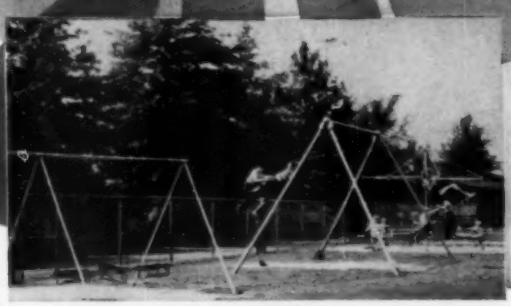
STOPS RUST!®

and beautifies as it protects in many attractive

COLORS

Distinctive as your own fingerprint. Accept no substitute.



Why let rust mar your park and playground equipment? Rust-Oleum *Stops Rust!* — and beautifies swings, slides, merry-go-rounds, fences, receptacles, buildings, power equipment, etc. Easy to apply by brush or spray, and dries to a firm, decorative coating that resists sun, moisture, heat, fumes, rain, snow, and weathering! Your nearby Rust-Oleum distributor maintains complete Rust-Oleum stocks in all colors for prompt delivery. Clip coupon to your letterhead for complete information and FREE TEST SAMPLE of Rust-Oleum 769 Damp-Proof Red Primer, *today!*

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Gentlemen: Please send me a FREE TEST SAMPLE of Rust-Oleum 769 Damp-Proof Red Primer for application over sound rusted surfaces, and complete information on the following:

- ☐ New 36-page catalog showing Rust-Oleum colors and applications.
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Transite Pressure Pipe is tested to AWWA specifications

says Walter Reynolds
Mayor, Providence, R. I.

"An efficient water system ranks high among the many advantages Providence offers industry"

"Since 1935, Transite Pipe has ably served in the continuing job of keeping our water system more than capable of meeting future needs. In this way our water system contributes not only to the health and convenience of our citizens, but also to the encouragement of industrial and economic growth in our city."

How Transite Pressure Pipe helps make community water systems even better investments

Few community investments bring a greater year-in, year-out return than a modern water supply system. For it favorably affects every phase of community life—adding to comfort, convenience, fire-safety . . . contributing to an active, growing business climate . . . saving tax dollars for other uses.

With Transite® water mains, your community water system can offer still further advantages through design—installation—and in-service economies.

Systems can be designed more efficiently. With a flow coefficient of C=140, Transite's high carrying capacity often permits use of smaller pipe diameters. And because Transite can't tuberculate (a form of interior corrosion) there's no need to make costly allowances for future reduction in carrying capacity.

Installation is more economical. Lightweight, easy-to-handle, quickly assembled with the Ring-Tite® Coupling—Transite reduces substantially the costs of time and labor. And in service, the Ring-Tite Coupling brings a tight, lasting seal to every joint in the system.

System is operated at lower cost. Because Transite can't tuberculate, its smooth interior stays smooth indefinitely to assure peak pumping economy.

Let us send you booklet TR-160A. Write Johns-Manville—Box 14, New York 16, N. Y. AC

TRANSITE PIPE—all-ways years ahead in design!

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COMPLETE
ICE AND SNOW
WAUSAU—
FIGHTING
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TRUCK
GRADER
ICE BLADE

Maintains, cuts and grades all types of gravel and dirt roads, eliminates ruts, holes, and washboards. For winter operation it planes, breaks, and removes ice and hard-packed snow hazards . . . truly a versatile year 'round maintenance unit . . . full power hydraulic cab control.

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SPREADER

Quick action spreading is a feature of this low cost self-contained unit that may be attached or disconnected in a minute. It has positive control of thickness, width, and direction of spread . . . operates only when body is raised — stops when body is lowered . . . no hazard to passing vehicles . . . sturdily built throughout for long service . . . width of spread 8 to 20 feet — hopper capacity 2 cubic feet.

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55 MODELS
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WAUSAU specialists in snow plows . . . 55 models and 9 types to select from . . . equipped with the finest of a full range of hydraulic controls to meet your individual requirements . . . will take more punishment, cost less to operate, and do the job better.

Write: today for the name of your nearest WAUSAU distributor who will assist you in getting year 'round maintenance equipment to fit your needs.

WAUSAU IRON WORKS WAUSAU, WISCONSIN
Pioneer Snow Plow Builders
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LOW COST
Controlled Irrigation

BUCKNER Turf-King Sprinklers provide a perfect curtain of water for efficient irrigation. Their rugged dependability saves time and money. Economy and complete satisfaction are assured when you use Turf-King Sprinklers.

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BUCKNER - best known name in turf irrigation for nearly forty years.

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No other filtering medium compares with

ANTHRAFILT
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Anthrafilt stands alone as the one Filtering Medium that is best for all types of filters.

Years of efficient and economical use in every type of filter plant has made ANTHRAFILT the standard of excellence in the filtering medium field.

ANTHRAFILT

offers important advantages over sand and quartz

DOUBLES length of Filter runs. • REQUIRES only half as much wash water. • KEEPS Filters in service over longer periods. • INCREASES Filter output with better quality effluent. • GIVES better support to synthetic resins. • PROVIDES better removal of fibrous materials, bacteria, micro-organic matter, taste, odor, etc. • IDEAL for industrial acid and alkaline solutions. • EFFECTIVE filtration from entire bed. • LESS coating, caking or balling with mud, lime, iron, or manganese.

IDEAL FOR USE IN EVERY TYPE OF FILTER

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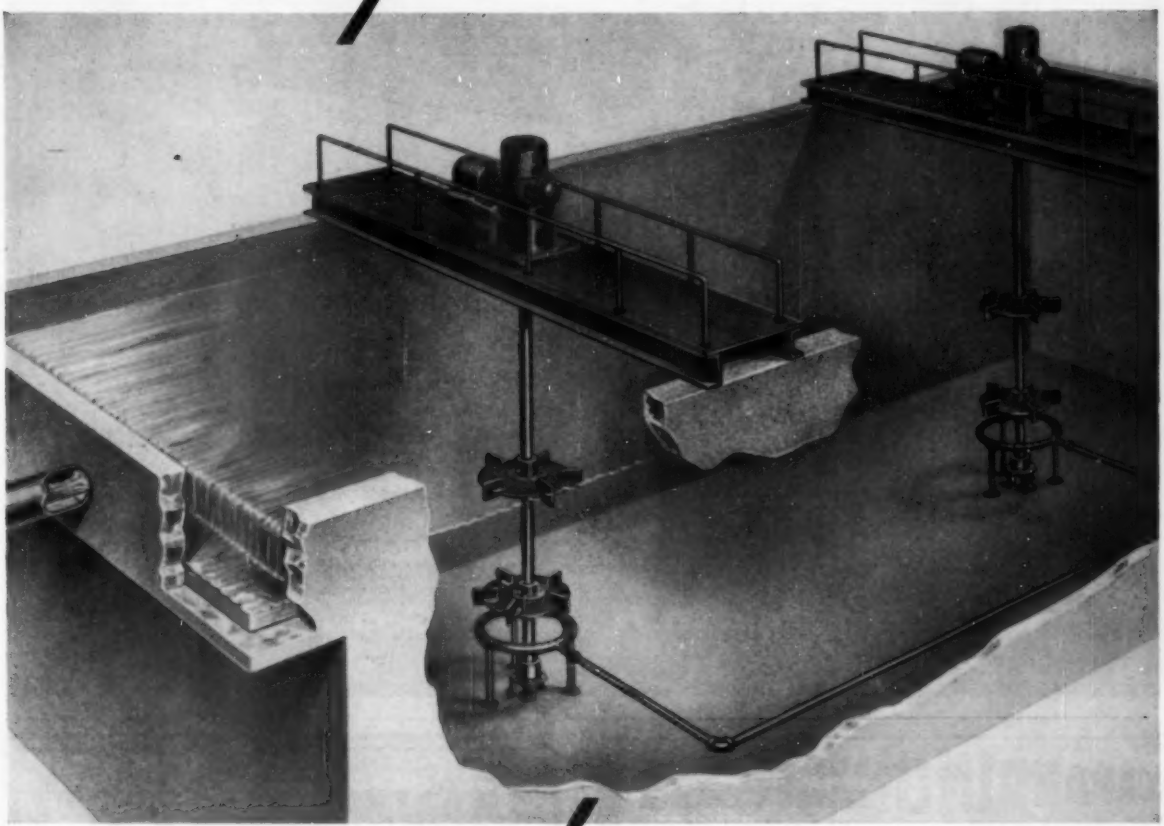

THE D-O AERATOR /

- increases oxygen absorption
- reduces sludge clogging
- cuts plant costs

Higher effective oxygen utilization – up to 50% compared with 5 to 6% in conventional systems – enables the new D-O Aerator to meet increased demands of the more concentrated activated sludges in today's biological sewage processes.

It's a brand-new design, proved by extensive pilot and operating plant work. Basic elements are high efficiency turbine type impellers and sparge rings for introducing air under the lower impeller. The sparge ring design virtually eliminates problems associated with conventional diffusion type equipment. Turbine aeration does not depend on constriction to produce small bubble size. There is less possibility of clogging, dead areas and short circuiting of sewage in the event of high entrance velocities.

What's more, overall installed costs are lower than those of conventional units. The new D-O Aerator can be adapted to a variety of tank sizes and installed in existing tanks. For more information write to Dorr-Oliver Incorporated, Stamford, Conn.

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Designed and manufactured by a century-old concern with 40 years' experience in designing, engineering and completely manufacturing hydraulically-powered stokers.

"F&E" Hydraulically-Powered Stokers are the most talked-of incinerator advancement in the field today.

Should you wish to see an "F&E" Incinerator Stoker in operation and get firsthand information on their revolutionary performance, we will be pleased to advise where the installation nearest you is located.

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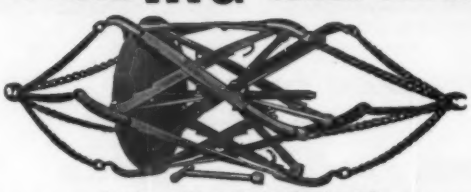
EXPANDING ROOT CUTTER SEWER CLEANER



Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Open and in action removing roots and cake sediment like this.

Write for our new catalog on complete sewer cleaning equipment.

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All Sizes All Types

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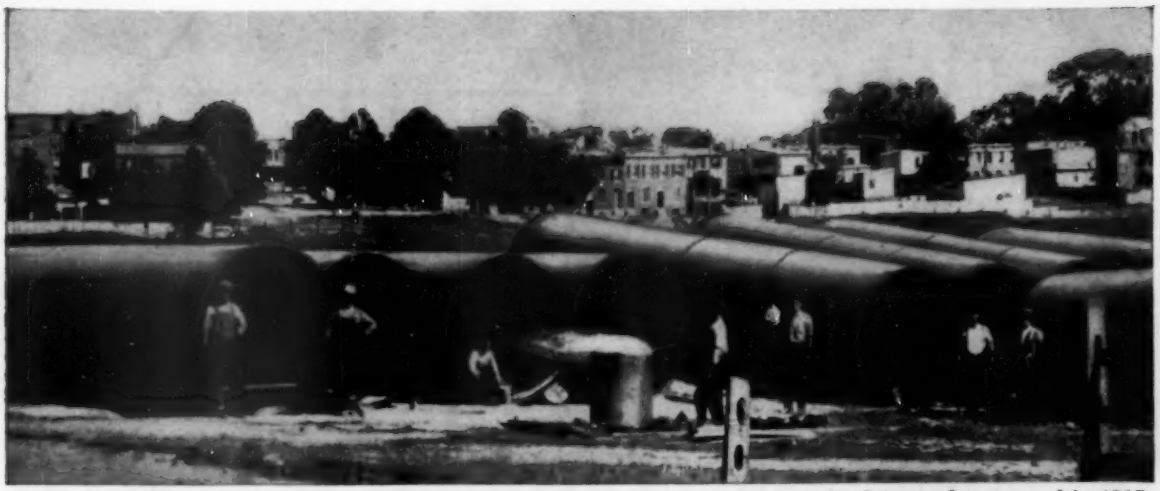


Applying coal-tar enamel in 1915.

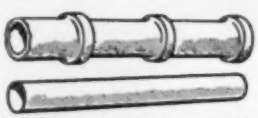
Steel Pipe in good shape after 42 years

Way back in 1915, Baltimore's Board of Water Supply installed an 84-in. steel main to distribute water from the Montebello Filtration Plant. The 4057-ft-long line is made up of riveted ½-in.-thick plates, and was hand-daubed with old style Bitumastic coal-tar enamel.

Today, after 42 years of almost constant use, this line is still giving fine service, with no apparent loss of flow capacity. The last internal inspection of the line, in 1939, indicated the pipe and its coating to be in excellent condition.

Baltimore is but one of many cities that has had long and successful experience with steel pipe. And, since today's steel pipe is vastly improved—better fabricating methods, better joints, better protective materials—we can safely conclude that *there is no known limit to the service life of coal-tar enameled steel water pipe.*

COMPARE THE COSTS— This drawing compares a single 40-ft length of steel pipe with 16-ft lengths of rigid-walled pipe of the same inside diameter. The steel pipe has thinner walls and a smaller outside diameter; weighs only about one-fifth as much per ft of length. Results: the steel pipe costs less to ship, to handle, and to lay. It requires a smaller ditch, fewer bell holes, fewer joints—only 132 per mile.



TESTED FOR STRENGTH— Every length of steel pipe is hydrostatically tested at the shop in accordance with AWWA specifications—usually to double the working pressure. What's more, steel pipe can withstand from 3 to 4 times the working pressure before bursting. And steel pipe safely resists water-hammer, shock loadings, and surge.

LEAKPROOF JOINTS—100 pct bottle-tight joints are a practical reality with steel pipe, whether Dresser couplings or welds are used. That means no water wastage, no costly washouts. And you needn't fear contamination of the contents due to infiltration from without. These joints are quickly made, they're permanent, and they're strong.

CORROSION-RESISTANCE—Modern methods of lining steel pipe with hot-spun coal-tar enamel make it immune to corrosion and incrustation. There is no known time limit to this protection. Many tar-enameled lines have been in service for upwards of fifty years. Coal-tar enamel provides the smoothest surface obtainable, assuring high flow coefficients year after year. Coatings and wrappings protect the pipe from moisture, acids, and alkalis.

BEAM STRENGTH—Steel pipe has the structural strength that is characteristic of tubular steel. It can span long washouts; is often handled in multiple lengths during installation. And steel pipe can stand up under the weight of heavy cover.

WIDELY USED—Some recent users of Bethlehem Steel Pipe are New York City, New Orleans, Philadelphia, Savannah, Reading, Cincinnati, Atlanta, Omaha, Worcester, Colorado Springs, and Boston. Further proof of the superior qualities of steel pipe is its use in thousands of miles of large-diameter gas and oil lines, as well as in high-pressure penstocks throughout the world.

For further information about steel water pipe, kindly contact the nearest Bethlehem sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
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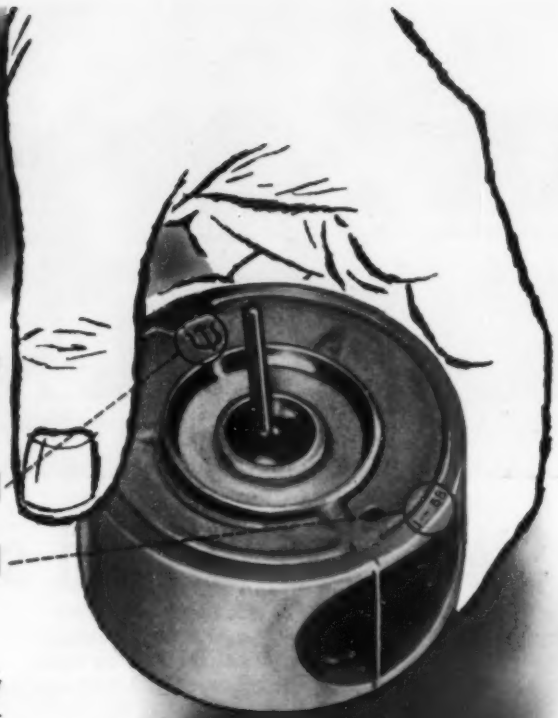
BETHLEHEM STEEL

Every TRIDENT Unit Identified and Dated



Trident water meters are precision instruments . . . every part made to extremely close tolerances . . . every material carefully selected and tested to give longest life in *your* water system.

Most important, every improvement made in new Trident meters immediately becomes available in repair parts for your older meters. You re-order only the latest parts. As you replace worn, out-dated parts over the years, your Tridents are *automatically* modernized.

To protect you from substitutes . . . and to make sure you're getting the benefits of Neptune progress . . . the Trident trademark is put on most all Trident parts . . . and the *date* is put on every major Trident part. Take a look at these date marks. They show you how well Tridents last. They also show you how your older meters have been kept up to date over the years with improved Trident repair parts.

Insist on genuine Trident parts . . . and check to be certain.

for your protection

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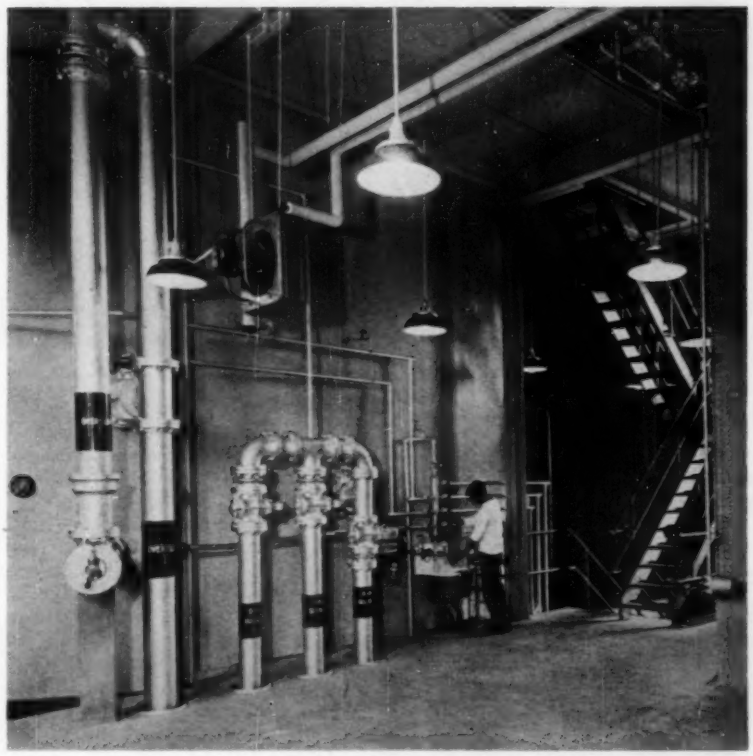
TRIDENT WATER METERS

Sewage Plant Paint Problems

. . . become minimized by use of water-base acrylic paint at the Massachusetts District Commission plant



This is the upper level of the digestion and control house. With the exception of floor and piping, all interior surfaces, including walls, ceilings and side of digester tanks, were painted light green to give a clean, orderly appearance.

SEWAGE plants are notorious "paint killers". Few industrial plants can match the variety of difficult exposure problems encountered in the average sewage treatment plant. Hydrogen sulfide from raw sewage combines with atmospheric moisture, particularly in the summer, to form acid vapors. Fumes from chemical and industrial wastes, handled by the plant and gases from the chlorine feed and from the digesters, can quickly deteriorate paint on nearby structures. In addition the high humidity inside the building caused by frequent hosing of the floors and the effect of hydrostatic pressure through concrete and cinder block foundation walls below grade level often cause problems. In new plants, the lime in fresh concrete and mortar will discolor and spall and chip alkali-sensitive paints.

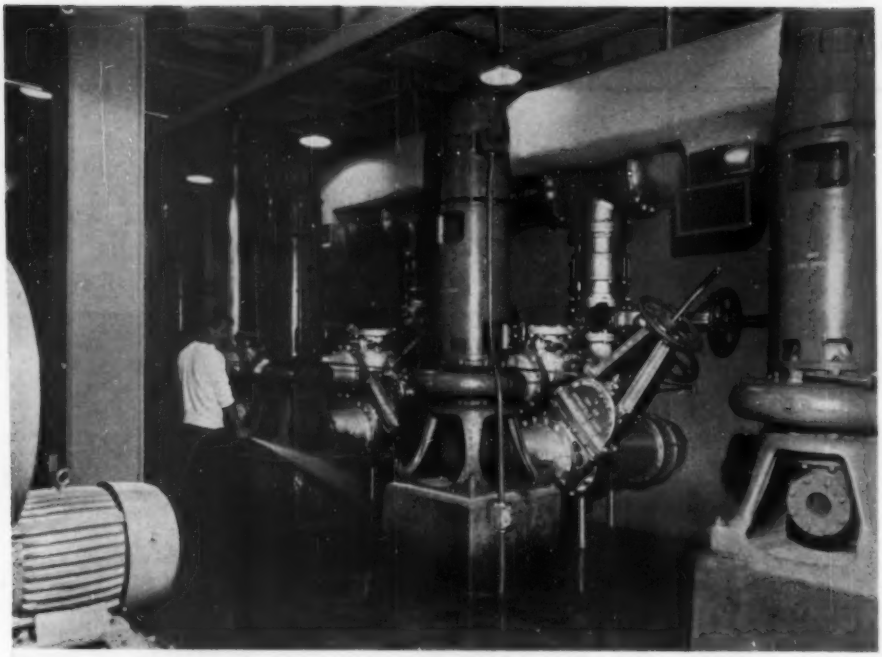
"Rubber-Base" Paints

Post-war developments have produced several new types of paints based on synthetic resin emulsions. By virtue of their physical and chemical properties and versatility, they offer markedly better performance in sewage plant applications than the traditional oil paints. This group, commonly known as "rubber-base" or "latex" paints, consists basically of a synthetic resin emulsion (the binder) dispersed in water (the thinner).

Of the several types now available, the most recent is acrylic paint, introduced about five years ago following development of a suitable acrylic emulsion, Rhoplex AC-33, by the Rohm & Haas Co. of Philadelphia, Pa. These acrylic paints have attracted considerable interest in industry because of their good adhesion to virtually any type of surface, because they are quick drying, almost have undetectable odor, and above all, because of their excellent resistance to weathering, sunlight, moisture, corrosive chemicals and industrial fumes. At present, there are more than 400 acrylic paints on the market.

One of the first sewage treatment installations to make extensive use of acrylic paint is the Metropolitan District Commission plant at Clinton, Mass. The plant, completed in 1956, is designed to handle an average sewage flow of 2.5 mgd and a maximum load of 6.0 mgd. The incoming sewage is received in two grit channels, its flow being regulated at 1 foot per second by a Parshall flume. It then passes through a 24-inch Barminutor unit that shreds the large solids before entering the raw sewage wet well.

The raw sewage is transferred by three 3-mgd vertical float-operated, constant-speed pumps to two 17,300-cubic-foot capacity primary settling tanks, which provide a detention time of 2½ hours with an overflow rate of 635 gallons per square feet per day

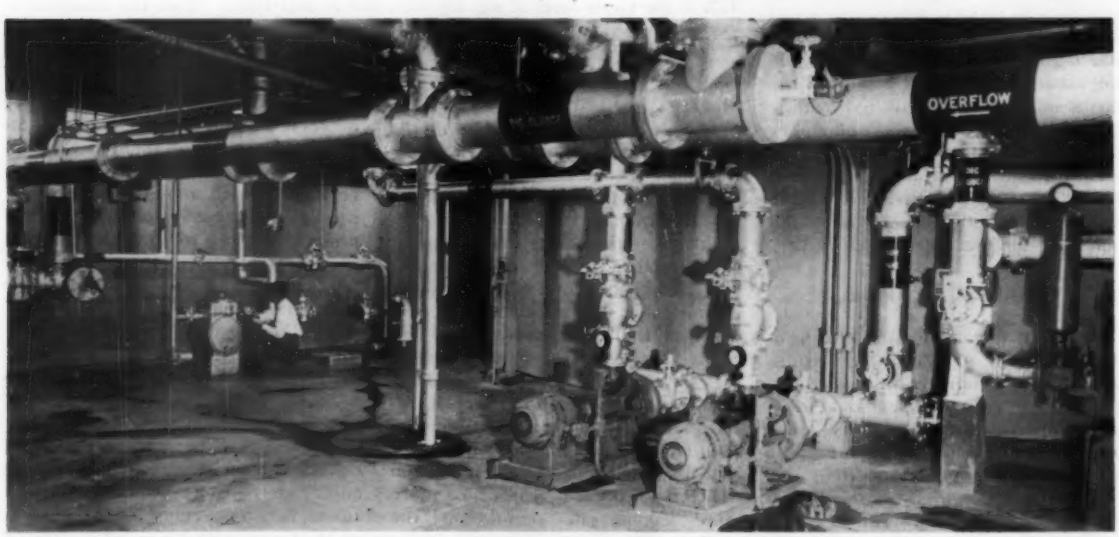


Despite almost two years of repeated wetting and drying, Plexicolor acrylic paint on concrete walls of pump-house basement remains good.

at the average design flow. The settled sludge and supernatant scum are collected and pumped to the digestion tanks.

The settled sewage then flows to two high-rate trickling filters, the effluent draining to a wet well from where it is pumped to the two final settling tanks identical to the primary tanks. A certain portion of the trickling-filter effluent, as determined by the raw sewage level, is recycled back to the raw sewage wet well through an opening in the filter effluent well to insure continuous operation of at least one of the raw sewage pumps at all times and to prevent freeze-up of the trickle-filter distributors during the winter. The collected sludge from the final settling tanks is returned to sewage ahead of the primary tanks; and the effluent is discharged into weir troughs which divide the flow. Part of the final effluent flow is recycled to the trickling filters, providing a recirculation somewhat greater than 1:1, depending on the amount of trickling-filter effluent entering the raw sewage wet well. The other part of the final settling-tank effluent discharges by cascades to the south branch of the Nashua River.

The digestion and control house measures approximately 43 feet square, excluding the dimensions of



This is the basement of the digestion and control house whose masonry floor is 8½ feet below grade level. Puddles remain from the just completed floor washing. This, and other cleanliness measures, take place on a daily schedule in the District plant.

the digestion tanks at each end. The pumping station measures 53 feet x 16 feet at the ground floor, and 53 feet x 28 feet in the basement pump room. All interior surfaces, which include cement, concrete and cinderblock walls, ceilings and exposed beams, were all painted with two coats of light green Plexicolor acrylic paint, manufactured by California Stucco Products of Cambridge, Mass.

Metcalf & Eddy, the Boston engineering firm, designed the plant and were instrumental in specifying the acrylic paint.

Following his inspection in December 1957, Alfred F. Bridgman, assistant superintendent of the Wachusett Section, reported the paint to be in "very good condition." No discoloration or any other deterioration is evident from gases from the raw sewage sludge or the digesters. In addition, the paint on the concrete basement walls, 8½ feet below grade level, has also remained in excellent condition despite hydrostatic pressure from ground moisture and daily hosing of the basement.

Moisture Resistance

Acrylic emulsion paints have exceptional moisture resistance owing to the vapor-permeable properties of the paint film which permit free passage of moisture vapor. As a result, any moisture forced into the wall cannot form pressure pockets behind the paint which are responsible for much of the blistering and peeling that commonly occurs on interior walls below ground level. Another valuable characteristic of acrylic paint is its excellent chemical resistance, particularly against the high alkalinity present in fresh concrete, plaster, mortar and other lime-bearing materials. Hence the paint can be used immediately on new construction without the usual 2-to-4 week waiting period.

Since being used at the Clinton plant, acrylic paint has been specified in the new sewage treatment facilities designed by Metcalf & Eddy for Township of Raritan, N. J., Field's Point in Providence, R. I. and the City of Louisville, Ky.

Machine Copying Quadrupled Production

Hand copying title deeds is a thing of the past in the County Clerk's office. Preprinted offset duplicating plates are made of each deed and copies are made in minutes. At left, Janet Johnson is collating copies to be distributed to other agencies. According to author (right) the number of documents handled by his office has increased 400% in the last decade.

By FRANK H. MARKS
Circuit Court Clerk
Broward County, Fla.

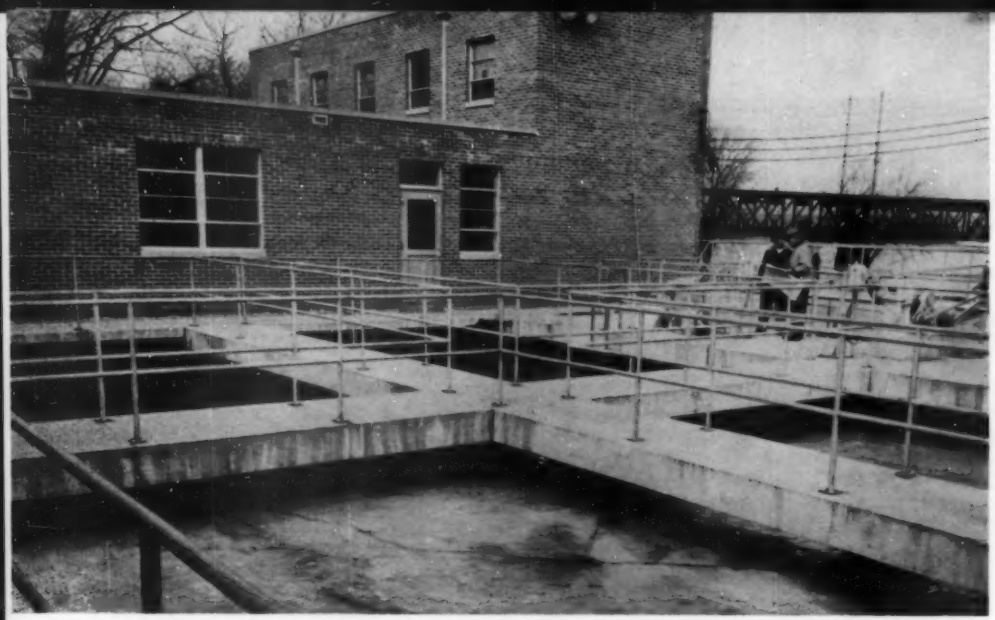
WHEN deeds are submitted to the county clerk's office in Broward County, Fla. for recording, sixteen copies must be made for distribution to various county offices. Previously, they had to be passed along from one office to another and copied by hand. It sometimes took six weeks before all offices had received and copied the documents. Today, by using modern duplicating equipment the same process takes only 8 to 12 working hours. The original deed can be returned to its owner within three days.

Documents received by the county clerk's office are stamped with time and date and given a filing number. A typist prepares a preprinted offset duplicating plate containing all of the important information — buyer, seller, property description — everything that's needed for indexing, docketing, and abstracting.

After it is proofread the plate is sent to the offset duplicating department for processing. Sixteen copies may be made in seconds. Three documents are reproduced on each sheet. The sheets are cut into three sections and placed in their proper order according to their file numbers.

The local title companies—there are six—receive copies of all deed transfers within 24 hours. This allows them to keep their abstract records up-to-date and eliminates the need for having their representatives visit the courthouse for this information—it's automatically sent to them. Because of the reproducing equipment, the circuit court is able to supply this extra without increasing its present staff.

At the same time the plate goes to the offset duplicating department, the original document is sent to the photocopying department which contains two Continuous Recorders and Copying Machine, made by Photostat Corp., Rochester, N. Y. All operations—developing, fixing, washing and drying—are automatic. The only manual step is putting the document to be reproduced into place.



Flocculation and sedimentation take place in these basins located adjacent to the filtration building.

Water Plant Replaced At Havre de Grace, Md.

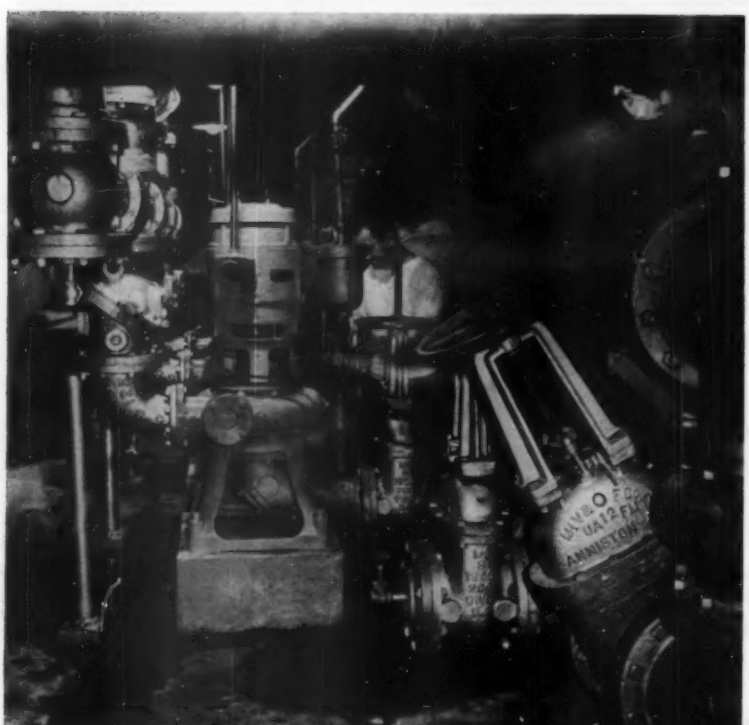
New plant and mains provide better service at lower discharge pressures and reduced operating hours

By J. A. SPRAGG, *Chairman* and A. T. BAYNES, *Treasurer*
Municipal Utilities Commission, Havre de Grace, Md.

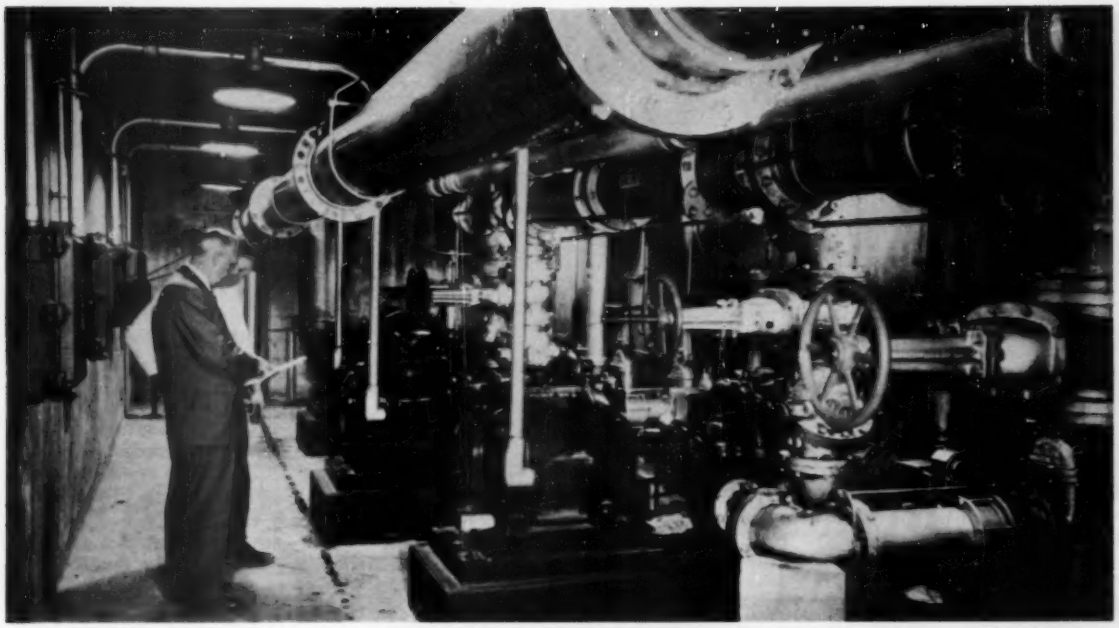
HAVRE de GRACE, Md., located at the mouth of the Susquehanna River, has an abundant supply of fresh water at its doorstep. At this point an average flow of more than 10,000 mgd of water enters the shallow Susquehanna Flats and upper Chesapeake Bay. The city at present uses only about 1.0 mgd.

The need for greater filtration capacity resulted in the construction of a completely new plant. Two factors made the choice of a new plant more desirable than adding to the 30-year-old plant. One was, that the old wooden structure was susceptible to complete destruction by fire. The other was the location of the old clearwell below previous flood levels.

The city engaged the engineering firm of Whitman, Requardt and Associates of Baltimore to handle the planning and construction supervision of the new plant. Thought was given to locating the plant farther upstream, but the engineers decided that it would be much more economical to use the existing site. Although available space was limited and the close proximity of the exist-



These pumps lift water from the Susquehanna River to the filtration plant.



Three high pressure pumps and the wash water pump, are in this subterranean but easily accessible part of the plant.

ing plant posed several problems during construction, all went well. Construction started in June 1954. In the summer of the following year after the new plant was tested and put into service, the old plant was razed.

New Plant

Three raw-water pumps draw water from the river by means of two intake lines—a new 12-inch pipe extending 625 feet from shore to a water depth of 20 feet, and an existing 10-inch line extending 525 feet from shore to 17 feet of water. All are Fairbanks-Morse vertical nonclogging type pumps, each rated at 800 gpm against a total head of 32 feet. They lift the water 23.5 feet from the river to the plant influent channel, where it flows over a measuring weir and through a ¼-inch mesh screen to the rapid-mix basin.

Chemicals are added to the water in the influent channel between the screen and the rapid-mix basin. Four Omega (Division of B-I-F Industries) volumetric type feeders, each having a capacity of 50 pounds per hour, handle the dry chemicals. Two are usually used to feed alum and the others feed lime. Two Wallace & Tiernan chlorinators handle both pre- and post-chlorination. The chlorinators are the only items salvaged from the old plant and have been completely reconditioned.

Average chemical dosages include 3.0 ppm of chlorine, 22 ppm of alum, and 12 ppm of lime.

Flocculation and sedimentation takes place in two basins. The flocculation portion of each basin is 28 feet wide by 11 feet long with a 14-foot water depth. The sedimentation portion is 28 feet wide by 50 feet long with a 14-foot water depth. Three-foot wide openings in the adjustable wooden baffles allows the water to pass from the flocculation to the sedimentation sections of each basin. Detention times at the design flow of 2.0 mgd amounts to 45 minutes and 3½ hours, respectively. Mechanical equipment includes Stuart Walking Beam-type Agitators, flocculation equipment and scraper-type sludge collection equipment.

The new plant contains three filters, each rated at 1.0 mgd at 3 gpm per square foot of area. They are 15 feet square and contain 10 inches of graded gravel and 24 inches of sand. Equipment includes Leopold bottoms, Palmer surface wash systems, and Builders-Providence operating tables and rate controllers. A 4,000-gpm, 50-foot head De Laval pump provides wash water, taking suction from the plant clearwell.

A 100,000-gallon capacity clearwell is located directly under the filters. The vertical pipe carrying filtered

The city's only storage facility, other than the clearwell, is this 3,000,000-gallon reservoir located within the city at an elevation of 200 feet above sea level.

Pneumatic rate-of-flow and loss-of-head transmitters at the rate-controller operate the indicators on each of the filter operating tables in the new plant.

water from the concrete collection box to the clearwell also contains the 8-inch rate controllers. Since the operating tables are located two floors above the filter rate controllers, practical considerations dictated the use of pneumatic rate-of-flow and loss-of-head transmitters rather than cable-operated instruments.

Three De Laval, two-stage, high-pressure pumps take suction from the clearwell and discharge into the distribution system and the 3,000,000-gallon, open, high-level reservoir located on the highest ground within the city. Provisions include space for a fourth pump to be installed when needed. Original construction also includes provisions for a fourth raw-water pump and one additional chemical feeder. Each pump has a capacity of 800 gpm at 125 psi.

The filter plant consists of a four-story structure, two above street level and two below. Main operations are on the third floor, which is entered from the street. Chemical storage occupies the fourth floor and the second floor houses the pipe shop, chlorine feeder room, pipe gallery and general storage area. This floor is at loading platform height above the finished grade of the service area in the rear of the building, and is 13 feet above normal river level and 4 feet above the highest recorded flood. There are no openings into the plant below the second floor level.

The lowest floor serves as the pump room and clearwell.

Bond Financed

A $560,000 bond issue, approved by the voters of Havre de Grace, financed the new plant and main construction. The total cost of the new plant, including removal of the old structure, came to $432,000. We spent another $65,000 on improvements to the distribution system. This included the laying of 4,000 feet of 12-inch main from the plant interconnected with the distribution system at various points.

For years the plant pumped continuously at pressures in excess of 150 psi to satisfy all portions of the city. Now we can shut down the filter plant on Sundays and operate between 14 and 16 hours a day during the week at discharge pressures of 115 to 125 psi.

Thomas O. Blackson of Havre de Grace held the general contract for the work. The plant was built under the administration of Mayor Walter McLhinney. Municipal Utilities Commission members during construction included O. M. Currier, chairman; Charles M. Moore and W. Leroy McMaster. Present members include the writers as chairman and treasurer, and A. Patterson as secretary. Alonzo B. Frederick is in charge of plant operations.

Nuclear Powered Municipal Electric Plant

THE Atomic Energy Commission has reached agreement with the Atomics International Division of North American Aviation, Inc., and the City of Piqua, Ohio, on the basis for contractual arrangements for a demonstration nuclear power plant at Piqua.

The agreement covers research, development, fabrication and construction of a 12,500 electric kilowatt nuclear reactor moderated and cooled by a high boiling point hydrocarbon and fueled by slightly enriched uranium.

Site

Piqua, under a separate agreement with the AEC, will provide the site near its existing steam plant on the Great Miami River, and the conventional turbogenerator and related facilities.

The city will also operate the entire plant for five years as part of its electric power and industrial steam system, and purchase from the commission the steam produced by the reactor.

The total estimated cost to the commission under the proposed arrangement would be about $12.3 million. This would include the cost of research and development, construction, training, test operation and operating costs to be borne by the Atomic Energy Commission. The conventional facilities that would be provided by Piqua have been valued by the city at about $4,000,000.

The reactor should be completed by July 1961. Title to the entire reactor plant and the fuel elements will be retained by the federal government.

Reward for Economy Idea

A PERSONNEL Department clerk who found a way to save Philadelphia money on mailing costs reaped a reward for his ingenuity.

Personnel Director Foster B. Roser presented a check for $15 and a merit certificate to William Harris.

Mr. Harris suggested that the thousands of examination announcements mailed by the Personnel Department each year be inserted in a smaller size envelope—thus saving money on purchase of envelopes and reducing weight subject to postage by a total of 2,340 ounces annually.

In most cases, cities reseal streets with their own forces and equipment such as this Littleford pressure distributor unit.

Most cities break out and raise manhole castings when resurfacing. However, many use adapter rings to simplify this.

Who Pays for Street Resurfacing?

. . . and whom does the city call on to do the work?

Repairing "chuck holes" remains a time-consuming hand operation in most cases.

THE old workhorse, the General Tax Fund, appears to be getting a little help when city streets need resurfacing. Traditionally, cities have assessed the first major street-surfacing cost against abutting or benefitted property owners, and have assumed the cost of resurfacing from general taxes. However, today, assessments are paying for the resurfacing in a substantial number of cases.

A study conducted by the editorial staff of THE AMERICAN CITY covering 103 cities shows that financing of street resurfacing falls into the following categories:

Financing	Percentage
General Tax Fund	71
Assessments	20
Other	9

The 9% generally use a combination of the two methods, utilizing special formulas.

In 60% of the cases, cities call in contractors to do the resurfacing work exclusively; in 18% of the cases, city forces do the work; and in the remainder, the cities use both their own forces and contractors. Twenty cities in the study maintain their own asphalt plants, chiefly to have a good supply of asphalt mix for repair and maintenance work.

A few cities report the use of adapter rings to raise manhole rings when resurfacing a street. However, the majority of cities report that they still break out and raise the manhole casting before resurfacing.

Chuckhole Repair

When repairing chuckholes or other broken spots in asphalt surfacing due to frost action or other subsoil failures, city maintenance crews still get the assignment. This is a laborious and time-consuming task. Regardless of the material used, it still must be placed by hand in most cases, although several cities report the successful use of mechanical equipment.

Slurry Sealing

Slurry sealing appears to be growing in favor as a means of renewing old, deteriorating and cracked bituminous paving where the base is still strong. (For an example of slurry sealing, see "Save Streets with Slurry," March 1956, p. 132.)

For light, seal-coating work, 58% of the cities reporting do this type of maintenance with municipal forces; 19% use contractors, and the balance uses a combination. Practically all of the cities pick up excess chips or other cover material with mechanical street sweepers.

Finished contours and established streets
control sanitary landfill operation to make sure that the city will . . .

Bury Garbage According to Plan

By J. M. CARPENTER
City Manager
and
LLOYD A. DOVE
City Engineer
Ames, Iowa

FOR the last two years Ames, Iowa has conducted sanitary landfill operations on a site being developed for future industrial use. This plan entails more than just filling in the low spots, knocking down the hills, and covering the refuse.

The League of Women Voters was instrumental in our adopting the sanitary landfill method of refuse disposal in May 1954. Prior to that, the city practiced open dumping and burning of flammable material, utilizing numerous areas both within and without the corporate limits. When the incombustibles and ashes filled one area to desired grade, operations moved to a new site. Land use costs varied from nothing up to $500 per month.

Long-Range Plan

A portion of the municipal airport grounds served as the first landfill site. No investment for land was made at the time. Through competitive bidding the city purchased an International Harvester TD-14 tractor with 2¼-cubic-yard Drott Bullclam and had an operator trained by factory personnel in the use of this equipment.

Adequate gravel roads adjacent to the site kept the expense of entrance road construction to a minimum. We practiced the area method of fill, depositing leaves from fall street pickup over portions of the ground to be used in winter. This reduced frost cutting considerably.

Our biggest problem consisted of the control of blowing paper. An 8-foot high fence of chicken wire constructed around the immediate fill areas helped some, and for further control, the operator deposited earth on top of the loads immediately after they were dumped.

Prior to completion of filling the airport site, we turned our attention to securing a long-time fill area. This resulted in the purchase of an approximately 350-acre farm located about one mile east of the city. About half the area was suitable for landfill purposes. The land cost $350 per acre.

The Chicago and Northwestern Railroad's main line splits the farm and one side is bounded by U. S. Highway 30. About 24 acres lies in the flood plain of the Skunk River Valley, but only a portion of this land has been observed under water in the past 15 years. This acreage can be raised about 8 feet in elevation. We feel that, with proper handling, the area can be developed into useful industrial property and we have set out to achieve this end. Consequently, this article deals more with the control rather than the actual operation of our sanitary landfill.

Development Plan

We considered the following steps in planning for future development of the property:

1. Develop an overall street plan to serve the area.
2. Design necessary utilities for the area.
3. Establish final contour map for the area.
4. Develop an overall site plan for the area.

The Engineering Department and the Plan Commission worked together in developing a street plan. The first step consisted of making a contour map with 1-foot intervals of the entire tract. ***Figure 1*** shows the street layout. Most important features of the plan are:

1. An 80-foot right-of-way established for all streets except access roads.
2. A 50-foot access road abutting U. S.

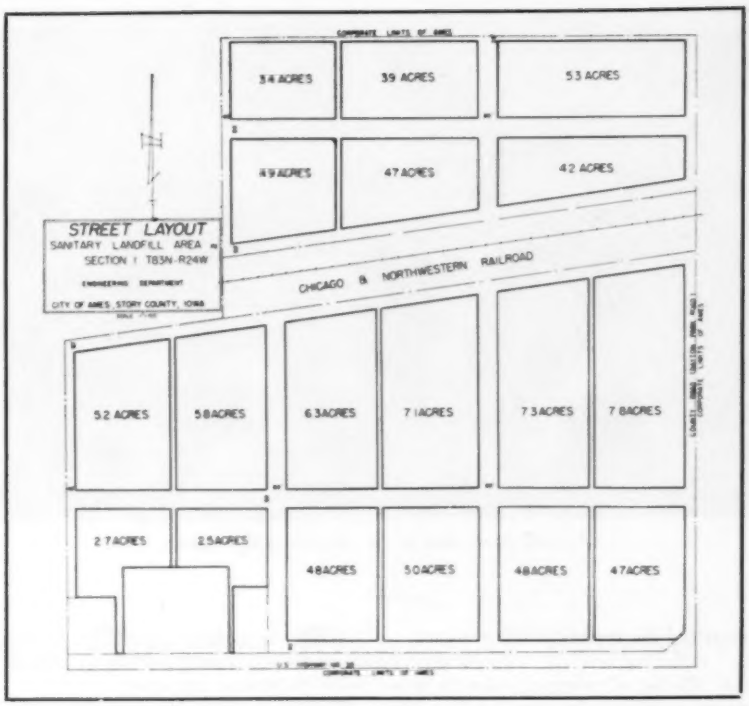
consisting chiefly of yard clippings

Left:

Filling according to plan will add value to the Ames, Iowa sanitary landfill site. Note storm sewer manhole constructed in advance of filling.

Right:

FIG. 1. Street plan of area being filled in with garbage and rubbish.



Highway 30 and the existing railroad.

3. A minimum-sized block established as 10 acres. (There were minor exceptions).

4. Twenty-foot wide north and south alleys provided for future utilities and railroad spurs.

Of considerable importance was the establishment of a street plan prior to starting landfill operations. This makes certain that no refuse will be deposited in a street or alley right-of-way, as this could complicate installation of future utilities and street surfacing.

Next came the establishment of final grades. One controlling factor was the railroad's requirement that grades of spurs should not exceed 1.5%. Other factors were as follows:

1. Meeting the grade of U. S. 30 at the point of access.

2. Meeting the grade of the county road to the east.

3. Setting minimum elevations that would be above the flood level of the Skunk River.

4. Keeping under maximum street grade of 5.0% to better serve anticipated future truck traffic. A difference of 66 feet in high and low elevation in the area necessitated cuts approaching 17 feet.

5. Setting a grade satisfactory for the railroad crossings to the north.

There were no utilities in the area, nor were there proposals for utilities. However, other considerations made the possibility of sanitary sewer and water main extensions to the area at an early date appear likely. Thus, such systems were designed. We expect that main trunk lines of the systems will be constructed in the next few years.

Storm water provided an immediate problem and had to be considered prior to starting landfill operations. The engineering department designed a storm sewer system and it is being constructed in stages immediately ahead of filling operations. Natural gas, electricity and telephone service can be supplied as needed.

Designing the finished contours for the site made up one of the most important development steps. This was

Neatness is the order of the day. No rats or vermin have been reported to date.

A small metal shed at the site houses the tractor.

required for the following reasons:

1. Placing of reference stakes to give operator finished elevations, advising him when fill had reached the point where final two feet of cover should start. Stakes also marked locations of borrow material to be used for cover.
2. Determination of total cut and fill quantities to assure that enough earth material would be available to bring the entire area to grade after it had been filled with refuse.
3. Determination of finished grade elevations at all points so that all permanent trees, buildings and other structures could be set at final grade.

Finally, an over-all site plan is now in the making. AID, Inc. (Ames Industrial Development) is working with architectural consultants on this plan for good industrial sites on the land in question. Such a plan puts the city in a good position to show prospective industries the proposed development of the area.

Private haulers collect garbage and rubbish under ordinance control. The ordinance governs the type of equipment (changed last July to require the use of steel, packer-type trucks only) and the type of containers used on private property; provides for inspection by city personnel; and requires a license. Rates established in 1956 set the cost to residential property at $2 per month. The hauler set charges to the business houses. Collections must be made three times a week between May 1 and November 1, and twice a week from November 1 to May 1.

The landfill site is kept open 24 hours per day. The full-time operator works five 9-hour days and a second man works two 9-hour days. Private individuals haul material consisting chiefly of yard clippings and junk, to the site. The regular haulers pick up only garbage from restaurants on Sundays.

A 12-foot x 20-foot sheet-metal shed houses the tractor and provides some warmth and protection for the operator while servicing his equipment Tree limbs and trunks are deposited in a separate area where they are burned.

Costs of Operation

Although our landfill cannot be noted for low cost in operation, we feel the following facts justify the expenditures:

1. We are developing a planned industrial site that might prove valuable in the future.
2. We have been commended for the neatness of the site and the fact it has caused no nuisance to the surrounding area.
3. No rats or vermin of any kind have been reported to date.

Costs for the first year's operation at the new site are as follows:

Land	$1,820.00
Storage building (10 years life)	100.00
Equipment rental (Includes gas, oil, maintenance)	9,887.29
Salaries and wages	6,560.59
Supplies	1,177.09
Access road maintenance	894.38
Buildings and grounds	4,130.62
Electricity	41.59
	$24,611.56

We estimated some 15,200 tons of material was hauled to the site, based on check weighings of the trucks at various times. This brings the per ton cost to $1.62. This unit cost will be reduced in future years, especially as more material is hauled to the site.

Connecticut Cities Plan Housing for Elderly

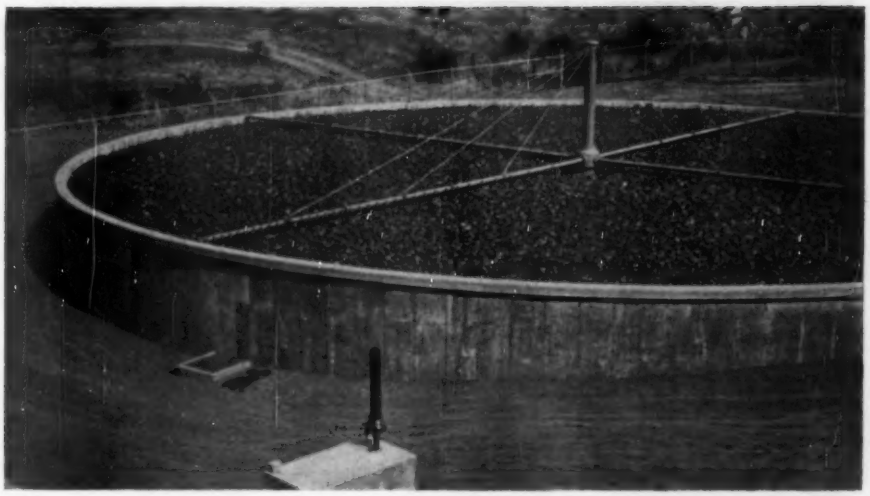
AS A WAY to stimulate local business economy to alleviate the current high level of unemployment the Connecticut legislature passed a bill to provide state loans to local housing authorities for the construction of housing projects specially designed for those 65 years old or over with low income. This legislation would set up a separate housing-for-the-elderly program.

To obtain state financial assistance, each municipality is required to subsidize each project by furnishing without cost all essential services, including roads, sidewalks, and sewerage and utility connections for these housing projects for the elderly. Other conditions of the bill are:

1. Projects or parts of the projects for elderly persons must be available only for elderly persons.
2. No requirement that the occupants of these projects constitute families.
3. Housing may be provided in separate dwelling units for elderly persons living alone or with persons eligible for residence.

Income limits for these projects will be fixed by local housing authorities, subject to approval by the Commission on Services for Elderly Persons, taking into consideration:

1. Current payments under Social Security and Old Age Assistance or other forms of relief.
2. Number of vacancies in the projects under the authority's control.
3. The number of applications for admission to tenancy which are refused because of income disqualification.



This 100 foot diameter trickling filter, containing 2,200 cubic yards of rock provides the required secondary treatment.

Sutherlin, Ore., Hurdles Financial Blocks

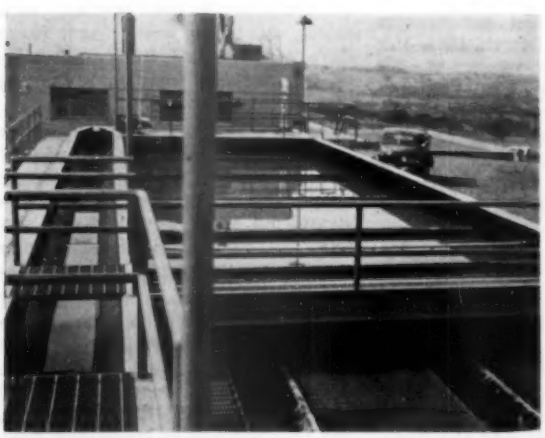
. . . and constructs first sewer system and sewage-treatment plant for its 3,000 inhabitants

By C. DEAN SMITH
City Manager

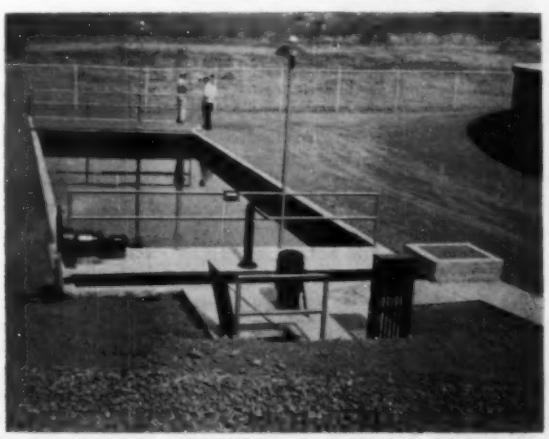
AFTER more than a year's operation of the new sewerage project, all of us in Sutherlin—the townspeople, city officials, and the engineers—are still proud of a job well done. Completion of this project transformed the community from a complacent, unsanitary village to a modern, clean and stable city. Sutherlin had no recognized sewer prior to this project. Now we have about 11 miles of sewers ranging from 8 to 18 inches in size, a lift station, and a treatment plant.

The plant, designed to serve a population of 3,500, provides both primary and secondary treatment. All sewage flows through the plant by gravity, but we do pump about half the total flow at a lift station within the city. This station contains three Yeoman pumps of 225-gpm, 360-gpm, and 360-gpm capacities controlled by a float-operated switching mechanism. Here the sewage is lifted about 15 feet to another gravity sewer that connects with the treatment plant.

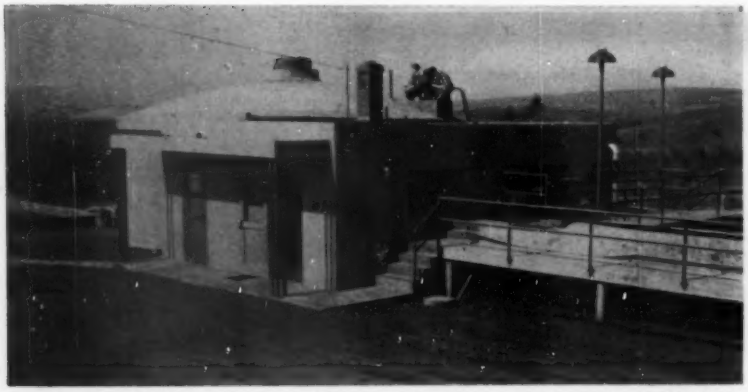
At the plant, the incoming sewage first passes through a steel bar trash rack, a grit chamber, Parshall flume, and then to the primary settling tank. Neither the rack nor the grit channel are mechanically cleaned. Our engineers, John W. Cunningham and Associates of Portland, Ore., felt



Sewage entering the plant first passes through the grit chamber (left) and then into the primary settling basin (right).



Effluent from trickling filter passes through secondary tank and then into stream. Recirculation pump is in foreground.



The digester (background), control house and primary settling and grit chambers.

the price of the equipment was not warranted, due to the stringent budget. Also, the fact that the entire collection system was new and tight, was recognized. About 15% of the sewers laid were tested by using plugs and filling the line and manhole and then measuring the exfiltration. Several lines were relaid to meet the specified limit of one gallon per hour per hundred feet of sewer per inch of pipe diameter.

The grit chamber is designed to maintain a velocity of one foot per second. A Foxboro flow meter connected to the Parshall flume records the amount of sewage entering the plant.

The primary tank is rectangular in shape, is 65 feet long, 16 feet wide, and has an average depth of 7.33 feet. At the design flow of 700,000 gallons per day it provides a 23-hour detention period.

Filtration and Recirculation

Effluent from the primary tank flows into the dosing chamber and then to the distributor of the trickling filter, an Infilco unit. The filter is 100 feet in diameter and contains 2,200 cubic yards of selected filter rock. It is designed for a BOD loading of 340 pounds. per acre-feet.

The final settling tank, also rectangular in shape, has the same size and capacity as the primary tank. Both the primary and secondary units contain Walker Process Co. sludge collector and skimming mechanisms. A recirculation pump transfers sludge from the secondary hoppers to the primary tank to act as a flocculating agent and induce settling.

Chlorine is added to the plant effluent by means of a Wallace & Tiernan chlorinator before it is discharged to the receiving stream. The stream flows intermittently, and to meet the requirements of the Oregon State Sanitary Authority, complete treatment was necessary.

Sludge Digested

Sludge digestion takes place in a heated, fixed-cover digester having a capacity of 10,500 cubic feet, based on 3 cubic feet per capita. Two pumps, a Marlow pump for primary sludge and a Fairbanks-Morse pump for secondary sludge, transfer the sludge from the settling tank to the digester. Digested sludge flows by gravity to the drying beds.

We heat the digester by injecting steam into the incoming sludge line, the steam being generated by an American Standard Boiler burning sludge gas.

The drying beds, four in all, are arranged in step fashion to conform with the contour of the land. Total drying area amounts to approximately 7,000 square feet.

Financing

Financing presented our biggest problem. Back in March 1953, the City Council made the first real step toward improving the city's sanitary conditions by amending the city charter and thereby enabling the city to construct a sewerage system. At that time the voters approved the issuance of $475,000 in general obligation bonds to finance the project.

Selling the bonds posed a problem, for a prior $450,000 bond issue for water system improvements put the city in a weak financial condition. However, after considerable efforts on the part of Sutherlin officials, the State of Oregon agreed to buy the bonds at 3% interest and the State Bond Commission helped draw up ordinances to collect funds for the repayment of the bonds.

We use three methods to gain revenue: (1) a monthly sewer charge; (2) a sewer assessment, and (3) a house service connection charge.

Monthly Charge

To obtain money in advance of construction, the monthly charge of $2.50 per residence and $3 per business went into effect two years prior to completion of the project. This received some adverse comment, but the money was needed. After completion of the system, we increased the monthly use charge over the minimum by 15 cents for each 1,000 gallons of water used after the first 1,000 gallons. This system is used for billing during the six winter months, and the average of the winter charge is made during the summer.

The city levied assessments against all properties within 200 feet of a sewer that was physically able to serve the property. This assessment, based on cost with allowance for engineering and supervision, came to $1.75 per front foot.

Service-connection charges are a flat $60, based on the average cost to the city for laying a 6-inch service sewer from the main to the property line.

The assessment ordinance allows for cash payment of the assessment and connection charge at 3% discount up to 60 days after the charge is due. The lien can also be paid off in 20 semiannual payments at 6% interest on the remaining principal.

Cost Below Estimate

The total cost of the project, including tools, land, easements, attorney fees and engineering and inspection came to $430,000. This price, substantially below original estimates, was indeed gratifying in these days of increased costs and price changes between the planning period and actual construction.

To date, 600 connections have been made, giving an average cost of $716 per connection. This figure becomes significant only after one realizes the spread out areas served by the system. Of course, additional connections will lower this average connection cost.

John W. Cunningham and Associates of Portland, Ore., designed the project and supervised construction. Jeske Brothers Construction Co. of Eugene, Ore., did the sewer work and Lee Hoffman of Beaverton, Ore., was general contractor for the plant.

The New Brunswick (Canada) School for Assessors assigns its pupils a test residential appraisal.

Tax Assessing: A Growing Profession

By EDWIN A. GERE, JR.
Training Officer
Bureau of Government Research
University of Massachusetts
Amherst, Mass.

ABOUT two years ago in a small rural community in the Finger Lakes region of western New York, the annual county fair was in full swing. Lined up behind a baseball throwing booth was a long row of customers, all waiting their chance for three tosses of the horsehide at the target. The reason? The target was a caricature of a man's face, neatly labeled "The Assessor." Business was brisk and the activity provided good entertainment for those involved.

The fairgoers and other citizens concerned about their taxes throw "baseballs" at assessors when perhaps they should be throwing them at someone else, if at all. Assessors —that is, assessors in most states— don't determine tax rates. Assessors measure value. So if taxpayers wish to throw "baseballs," a better target for them might be the body which passes on the budget and sets the tax rate.

Yet due to the sometimes misunderstood nature of his duties, the assessor has often been given much of the blame for the high cost of local government. As a consequence the assessor's calling has not always been an attractive one. His status as a professional has been slow to materialize.

About 20 years ago, assessors declared war on their own mediocrity by setting out to increase the status and prestige of assessing. By any standard, they have been extremely successful. In slightly more than two decades they have elevated assessing from the "just another job" level to that of a firmly established profession.

On an international scale they have joined in a National Association of Assessing Officers. Established in 1934 to advance assessment standards and promote uniform assessing practices, the NAAO, with headquarters on the University of Chicago campus, has grown from its original membership of twelve individuals to an organization represented in all 48 states, the District of Columbia, Hawaii, the Virgin Islands, Alaska, Puerto Rico, all the Canadian provinces, the Philippine Republic, Costa Rica, El Salvador, Italy, Iran and Venezuela. Approximately 2,400 persons now on its membership rolls utilize NAAO's consulting, informational and educational services.

State Associations

On a local basis assessors have formed approximately 40 state associations. These organizations help assessors solve problems peculiar to their respective states and they provide the impetus for individual professional improvement. The Connecticut Association of Assessing Officers, for instance, has cooperated with members of the State Tax Department and the Institute of Public Service at the University of Connecticut in sponsoring an annual assessing school, now in its 13th year. This school was the first of its kind in the United States. Outstanding assessors, tax experts and appraisers comprise the school teaching staff.

Connecticut School

At the Connecticut school, conducted for four days each July on the university campus, assessors attending for the first time must enroll in a basic course in which fundamentals of the profession are stressed. Those having attended the basic session—and there are many regulars who never miss a year—enroll in an advanced curriculum to work out specialized problems.

Through associations in Massachusetts, New Jersey, Georgia, Pennsylvania, Oregon, Texas and other states, assessors have joined with university research bureaus and state tax departments to sponsor schools of varying duration and makeup. Last September Massachusetts assessors from 160 communities held their second annual school at the University of Massachusetts. This training course was jointly sponsored by the State Department of Corporations and Taxation, the Association of Massachusetts Assessors and the University's Bureau of

Government Research. In 1956 schools were conducted in 22 states and four Canadian provinces.

In at least 25 states assessors have cooperated through their associations and tax agencies in writing handbooks and manuals for use in their training institutes and their everyday work. Such handbooks, generally representing the collective efforts of many writers, are meant to serve only as guides, not gospels. Uniformity is approached more through voluntary acceptance of assessment standards than through statutory or regulatory action.

Achievement Honored

As a means of recognizing distinguished achievement within the profession the NAAO confers upon assessors who have met certain rigid requirements the coveted designation of Certified Assessment Evaluator. A CAE must be at least 30 years of age, must have been both an assessor and an NAAO member a minimum of five years and must pass stringent examinations on appraisal and assessment. Indicative of the strict requirements for the CAE honor is the fact that to date only 82 assessors in this country and elsewhere have received this award.

No assessor can be designated a Certified Assessment Evaluator until he personally subscribes to the Code of Professional Ethics and the Credo for Assessors—two statements of guiding principles drawn up in 1954 at NAAO headquarters. Reflecting the spirit of a high level of ethical standards among assessors, the Code and the Credo have done much to elevate the status of the profession. They have been endorsed not only by CAE's as a requirement for such designation, but by numerous state associations and by countless individual assessors not holding the CAE honor. Walk into your local assessor's office some day soon. It's a good bet that both the Code of Ethics and Credo will be framed and hanging on the wall.

It is to the assessors' credit that they began to raise themselves by their own bootstraps back in the 1930's, for by the end of World War II, the requirements of assessing virtually dictated such a change. Rapid industrial growth, increased homebuilding, expansion of suburbs —all exerted a profound effect upon assessing. The profession *had* to become scientific in the face of such phenomenal changes, but assessors had already made the transition. While it can still be observed in some communities, the old practice of pulling John Jones assessment out of thin air with a haphazard guess is disappearing. "Windshield" appraisal of real estate is likewise on the way out. The county fair incident, happily, is not a widespread occurrence today.

Because the property tax remains the major source of revenue for most towns and cities, its importance will continue to grow with increasing costs of local government. As a result a higher degree of skill and capability will be required to perform the assessing function. The assessor's place in government will assume increasing significance.

Future Progress

Assessors are proud of the status which their calling has achieved but they do not intend to stand still. Conscious of the "badman" label sometimes hung on them, yet aware of the responsible position which they hold in local government, assessors everywhere realize that theirs must be an exacting profession. At the same time, they recognize that no one in public office is immune to criticism. You and I aren't going to see the day when no one takes a potshot or two at the local assessor, but their progressive activities undertaken since 1934, and particularly in the post-World-War era, indicate that they are well on their way to a new prominence in the public eye.

Airport Runways to Become Streets

MIDLAND, Texas is proceeding with plans to develop a portion of an airport into a residential addition and shopping center.

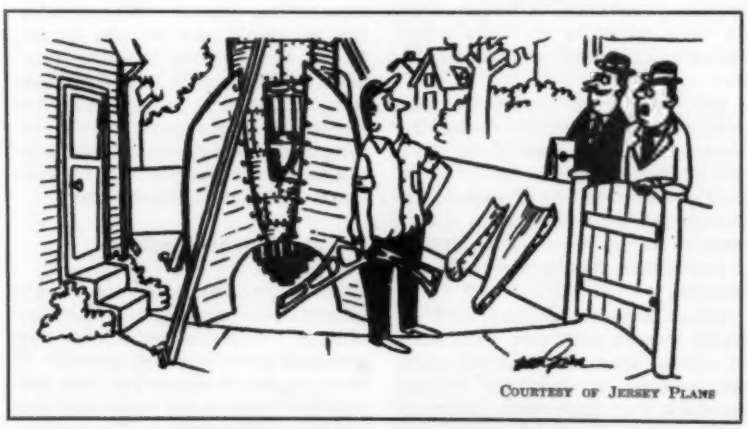
Under this plan, certain of the runways and warm-up aprons will be utilized as streets and a parking area for the proposed shopping center, when developed, according to a recent announcement by J. M. Orman, city manager. The new area, to be known as Terrace Hills Addition, is being planned by Kenneth E. Esmond & Associates. The airfield covers more than 800 acres of land of which 240 acres were recently released by the federal Civil Aeronautics Administration.

Shopping Center

When fully developed, the shopping center would have some 202,000 square feet of retail store area and 105,000 square feet of warehouse space, with a parking ratio of 4.2:1.

The center will service a potential population of 70,000. The immediate area surrounding the center will be set aside for large apartments, and nearby land will be devoted to office buildings, clinics, banks and fire stations and related facilities. In the residential area, lots will average 85 feet wide and 120 feet deep. The streets will be 60 feet wide except where drainage indicates a need for greater width. Alleys will be 20 feet wide except in the shopping area, where the width will be 40 feet.

Four schools will be provided for Midland's new residential area.



COURTESY OF JERSEY PLANS

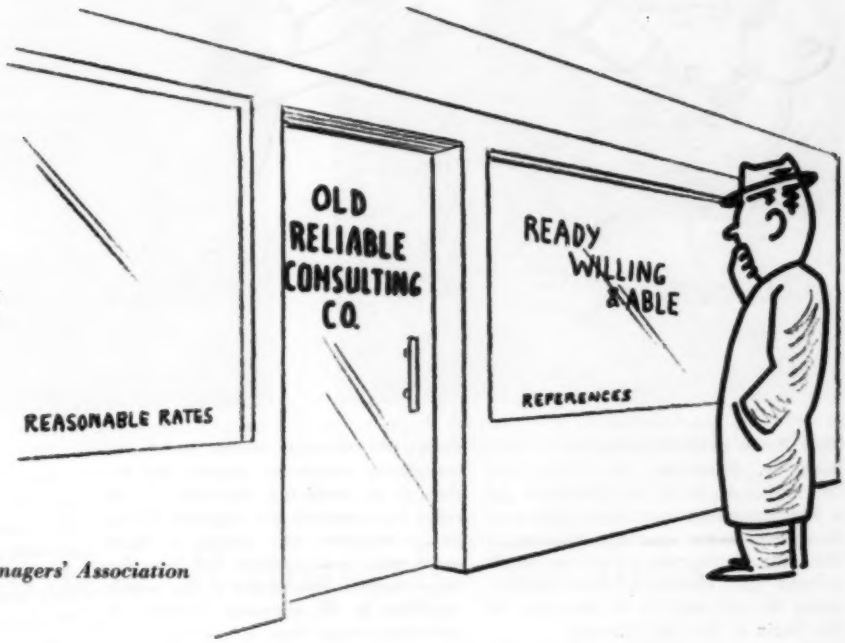
"Mr. Walker, we're from the zoning board."

How to Select and Use Consulting Services

. . . to get the

greatest value

for the municipality



By ORIN F. NOLTING
Executive Director
The International City Managers' Association
Chicago, Ill.

ONE veteran city manager with a long and distinguished tenure of service with his municipality, once said that he considered an important part of his duties that of "protecting his municipality from the consultants his council had to retain."

This rather blunt statement will strike a responsive chord in the minds of many municipal administrators. It points up, in a direct way, the following two important factors:

- No one should take the selection of a consultant casually.
- After the consultant has been selected, no municipal official should follow his advice blindly.

To get a clearer understanding of each point, let us discuss each in detail.

Understand the Problem

Before calling on a consultant, the municipality must understand its problem. It must be able to:

- Define the problem's general nature.
- Describe its type and scope.
- List the technical resources and basic data that ought to be employed to reach a solution.
- Then decide the type of outside technical services desired.

On the basis of these general specifications, the municipality can then invite several consulting firms to discuss their ability to provide help in a solution. The municipality properly should learn from these firms such things as:

- Its experience with problems of this nature.
- What personnel within the firm would be available for work on the problem, and how skilled they are.
- How soon the firm could go to work on the problem, and what its schedule of completion probably would be.
- A list of projects of the same nature that the firm has completed in the past, together with the names of the municipal officials with whom the firm dealt, and who would be available for reference.
- Finally, a statement estimating the fee to be charged, with the understanding that the skill and experience of the firm, rather than the fee, will be the primary factor in selecting the consultant.

The municipality could very well ask prospective consultants to cite all such projects that they have performed rather than a few selected undertakings. Furthermore, it should make inquiry of those officials who were in office when the consultant was actively at work and who have lived with the results of the work.

Avoid "Bidding" for Consultants

Obviously, no municipality can serve its best interests by selecting a consultant on the basis of a bid price. In the first place, consulting service is not a commodity meeting a standard specification. No two consultants

have equal skills, capabilities, or experience. Moreover, the stakes are too high. An error in judgment by a bargain-priced consultant can cost many-fold more than the savings in the fee. Numerous court decisions uphold the viewpoint that consultants do not need to be selected on the basis of the fee charged.

Of course, one must point out that examples exist where public agencies have misused their power to award personal service contracts without public bidding. The selection in the final analysis, must be demonstrably in the public interest.

Other Points

Municipal officials should keep other points in mind. Some will include the following:

1. Do not employ a consultant to avoid making a difficult decision. The municipality should be certain that it has a legitimate project.

2. Assign your best employees to work with the consultant in order to get the most benefit for the city. Do not assign extras who may have some spare time.

3. Be wary of consultants who offer to do "free" work. Such offers may be associated with projects in which specifications eliminate competition and favor a special supplier. Obviously, engineering or other consulting work cannot be free. It is work that has to be done and paid for. The cost will be buried somewhere in the project, generally in the price of the equipment or the construction work. Moreover, you undoubtedly will find your overall costs higher than an equivalent project with paid consultant because the supplier knows that he has no competition.

4. Do not bind the city by the offer of a consultant to prepare a report without charge with the understanding that if the municipality accepts the proposal and decides to go ahead with the project it will retain the consultant who prepared the report. Consultants who prepare a report under such terms probably will slant the report to favor construction of the project regardless of the economics involved. A preliminary report from a consultant must be unbiased. It should leave the city free to act on the next step—to employ the same consultant, some other consultant, or none.

5. Consider carefully the offer of a consultant in one field to do work in another field in which he has had little or no experience, as, for example, a consultant who offers to prepare a long-range plan for highways, traffic, parks, and other facilities when his chief work has been in sanitary engineering. Make certain that the consultant has a well-qualified staff that can do such planning work.

Fee charged

While the selection of the consultant should not be primarily on the basis of the fee charged, nevertheless the cost of his services should be fixed as accurately as possible. The most satisfactory arrangement is for the consultant to fix a maximum beyond which no charges will be made, and to bill against the maximum for transportation costs, staff time and other items. These arrangements ought to be incorporated in writing.

After the consultant has been selected, a municipality must then turn its attention to working with him. Credit for a successful consulting project belongs both to the consultant and to the public officials who engage him. Moreover, the success of the project depends as much on the officials as on the consultant.

The municipality must remember that the authority and the responsibility for making decisions rests with its officials and not with the consultant. Accordingly, local officials must make decisions on all recommendations, accepting them, rejecting them, modifying them or instructing that they be returned for reconsideration.

When a project is complete, local officials should make it a point to tell the consultant of difficulties encountered in the continued operation of systems which the firm has developed. Undoubtedly many of the dissatisfactions with consulting work arise from failure to give the consultant the benefit of specific constructive complaints which the consultant can help to correct.

Operation

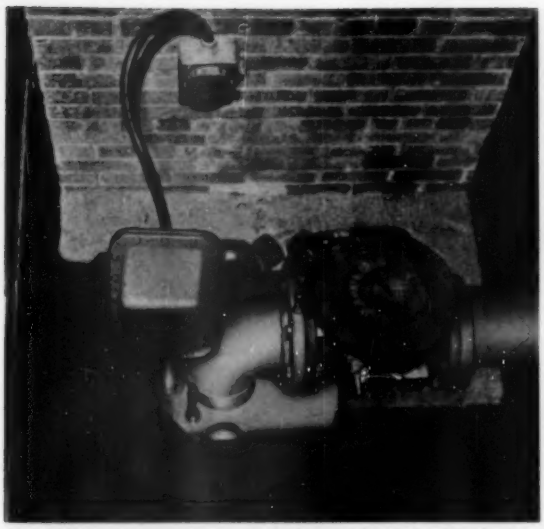
Frequently, a municipality will be serving itself well by arranging for the consultant to supervise the operation of the project for at least a year. During this "shakedown" period, both the municipal official and the consultant can correct any problems that may arise and can assess responsibility. Often the consultant can be called in on a regular basis to re-examine the project and its operation.

Consultants bring to municipalities a vast amount of specialized information that no city can be expected to keep itself. The consultant also provides staff, skilled in these duties, who can devote the time necessary to an important capital investment that would be physically beyond the ability of a municipality's engineering staff.

Finally, not everyone who hangs out a shingle as consultant is automatically qualified. Even certification by state boards of examiners and other technical groups is not a guarantee against trouble. A city can and must investigate for itself, and then be prepared to work with the consultant. When it does, it receives full value for these services.

Cleaner Air in Omaha

THE GOAL of clean air has been reached in Omaha, Neb., according to Herbert Ulrich, City Sanitation engineer. Mr. Ulrich reports that Omaha's air pollution has been reduced by 93% over the past 10 years and that the city's progress in smoke abatement is at an irreducible minimum.



The simple vaults required for submersible pump installation ring up savings in construction and maintenance.

A manhole in the street plus the control boxes on utility pole offer the only visible signs of the underground well and pump.

Hidden Pumping Stations

Pumps with submerged motors permit Owensboro to put wells in residential streets and get no complaints

By ELMER SMITH
Superintendent
Municipal Utilities
Owensboro, Ky.

MOTORISTS driving through the streets of Owensboro, Ky. actually run over part of our water plant without knowing it. We have nine wells in residential streets. Each is equipped with a pump, powered by a motor connected directly to the pump impeller, and sealed to operate under water. All that the public sees is a manhole cover. A recently completed water improvement program included the drilling and equipping of six of these wells.

Problems Eliminated

Drilling wells and erecting pump stations in well-established residential areas always presents serious problems. The cost of land is generally high; the style and architecture of the pumphouse is subject to criticism; and the operation of the pumps generally causes complaints. To eliminate these and other problems, we chose Byron Jackson submersible pumps that permitted us to drill wells in the streets and house the equipment in underground vaults.

The new wells, drilled by Layne Central Co., Memphis, Tenn., are of the gravel-wall type, 20 inches in diameter and 128 feet deep. All pumps are powered by 20-hp motors and have a capacity of 500-gpm against a 40-foot head. The wells discharge into a 30-inch gathering line connected to the aeration and softening plant.

Masonry vaults around each well house a Rensselaer check valve and a 6-inch Sparling meter. Byron Jackson well seals make the wells flood-, weather-, and vandal-proof. Weatherproof cabinets mounted on telephone poles contain the starters and automatic controls. These units are products of the Sparton Control Systems Division, Sparks Withington Co., Jackson, Mich. Operators at the treatment plant turn the individual pumps on and off as needed from the main panel at the plant. Leased telephone wires connect the well controls to the main panel.

The vaults are capped with a precast-concrete cover that can be lifted off should major work on the wells be necessary. Normal access by department personnel is through a standard manhole fitted into the precast cover. All one can see of the installation from the street is the manhole cover and the control cabinets mounted on a nearby pole.

Operate at Any Depth

The BJ pumps operate completely submerged at any depth, with no adjustments or routine maintenance required. Adjustments to lowering water tables are made by simply adding riser pipe and cable at the surface end. Since the oil-filled motor is close-coupled to the pump, the entire unit operates efficiently even in crooked wells.

Black & Veatch, Consulting Engineers of Kansas City, Mo., designed and supervised construction of our improvement program. Floyd Smith served as resident engineer.

Workman secures cellular glass insulation to steam pipes. Semicircular sections are held in place by aluminum straps.

A mastic coating was next applied and glass fabric imbedded in it. This was followed by a layer of roofing paper.

Steam-Heat Savings

Virginia, Minn. finds a way to make its city-wide municipal heating system more economical

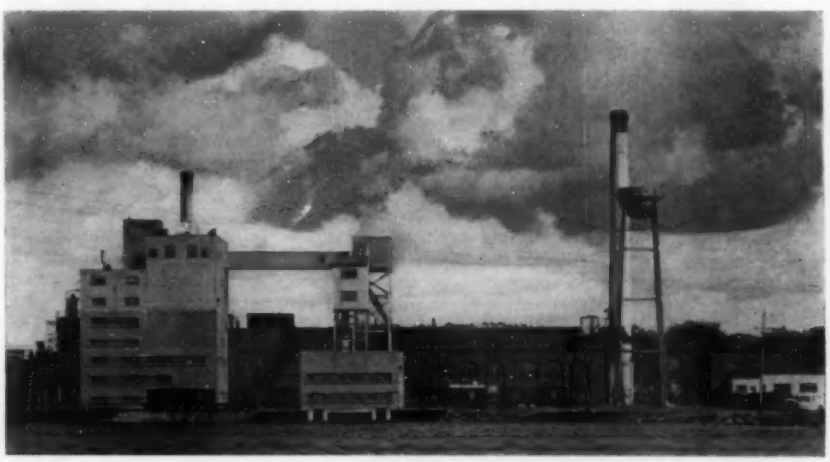
By CARROLL L. ELLIOTT
Superintendent of Water and Light
Virginia, Minn.

THE City of Virginia, hub of the great Minnesota iron mining area, is unique in that it supplies about 80% of its 15,000 inhabitants with municipal steam heat.

Approximately 16 miles of steam mains service customers in the north and south side residential and business areas. This year the city undertook a $345,000 expansion project which involved the laying of 10,235 linear feet of insulated piping. This program is producing an annual savings of $35,000 or 10% of the project cost.

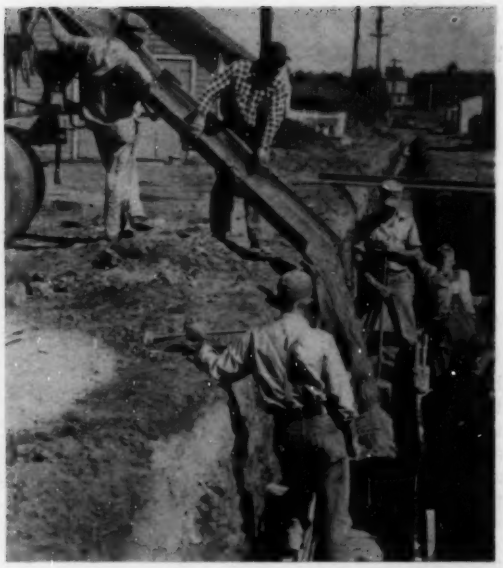
The city's previous experience with insulated, underground piping had not been entirely satisfactory. During the planning stages of the present project we investigated possibilities of insulating the steam lines so that the insulating efficiency would be unaffected by moisture and remain constant.

The city's specifications call for the piping to be insulated and then covered with concrete. Insulation used on previous sections of piping was not structurally strong enough to take the weight of the covering concrete. It was necessary to build forms around it and pour concrete into the forms. This resulted in a gap between the square concrete-



Over 80% of the inhabitants in the City of Virginia, Minn. are supplied with steam heat from this municipally-owned steam and electric generating plant.

C. L. Elliott, Superintendent, Water & Light Department, Virginia, Minn. holds section of cellular glass insulation.



Compressive strength of cellular glass insulation enabled concrete to be poured directly on the insulated lines.

covering and the circular pipe.

Service lines to residences are not concrete-covered. As a result, where these join the mains, surface drainage seeped into the spaces around the pipe. The insulation turned wet and pulpy, and when dry, became brittle and cracked. The result was a 50% loss of its insulation efficiency.

After investigating available materials, the city in combination with its consulting engineers, Donahue Engineering Company of Virginia, chose a unique cellular glass insulation (Foamglas, a product of the Pittsburgh Corning Corporation). The material has an ultimate compressive strength of over 7 tons per square foot which would allow the concrete to be poured directly on it. In addition, since it is composed of millions of sealed glass cells, it would be unaffected by any moisture that might get into the system.

A crew will lower the pipe into the trench, aligning it to grades, setting it in concrete saddle blocks about 1 foot wide and spaced every 12 feet. This procedure in itself saved time and money since previously we had to lay the pipe on a 4-inch thick concrete floor, the entire length of the trench.

The workmen next applied Foamglas insulation, 2½ inches thick, in the form of semicircular sections. Two self-clamping ½-inch aluminum bands hold them in place. The insulation is then wrapped with glass fabric imbedded in mastic. A layer of tar paper (roofing paper) was then banded on the length of the pipe.

Exterior forms were then placed in the trench so that the concrete could be poured around the entire main to provide a minimum of 4 inches. Four ½-inch reinforcing rods were placed at the corners.

Through the use of this technique we estimate saving about $35,000 per year—or 10% of the $345,000 cost of the project.

This addition to the system used 254 linear feet of 18-inch pipe; 1,421 feet of 16-inch pipe; 516 feet of 14-inch pipe; 1,623 feet of 12-inch pipe; and 6,420 feet of 6-inch pipe. In addition 102 service lines of 2-inch pipe, with an average length of 65 feet, were installed.

Background Information

As mentioned previously, Virginia supplies steam heat service to about 80% of its residents and is probably the largest proportional residential steam heating system in the world originating from municipal facilities.

Steam is produced in nine boilers having a total capacity of 470,000 pounds of steam per hour. It is sent out in pressures ranging between 10 pounds and 50 pounds at temperatures from 240° F. to 295° F. To produce this steam, about 65,000 tons of coal a year are required.

The municipally-owned steam heating system started in 1913 when the city acquired a small plant to generate power and pump water. It also supplied steam, obtained from a nearby sawmill, to the residences and business in two city blocks.

In 1918, the sawmill's heating capacity was enlarged and the beginnings of the present central heating system were made. In 1922, the city power plant was enlarged to provide additional steam and generating capacity.

In 1929, when the sawmill was abandoned, the city expanded into an independent operation.

Subsurface Drainage

A two-part series describing subsurface water and the basic elements required in planning a subsurface drainage system

Part I—Subsurface water and physical properties of soil

By J. R. BAITTINGER, P.E.
Civil Engineer
Scotch Plains, N. J.

SUBSURFACE drainage is of considerable importance to the municipal engineer, for much of his work brings him in direct contact with the subject. Whether it is the construction or enlargement of an airport, extension of the street system in a wet or unstable area, or protection of existing facilities, subsurface water as well as surface water must be taken into account. This concise treatment of the subject will give the persons responsible for municipal construction and maintenance a better understanding of subsurface water and the necessity of subsurface drainage (Part I) and the basic principles involved in planning a subsurface drainage system (Part II).

All water that occurs beneath the surface of the earth is known as subsurface water. Although it is not visible it is responsible for many of the structural characteristics of the soils upon which roads, airports and buildings are erected. This water usually varies in depth with the season, the rainfall and the soil characteristics of the area. It may be near the surface, lying dormant in a swamp or marsh, or moving many feet below the surface in some arid area. The velocity of subsurface water is not usually sufficient to carry suspended solids and therefore it is crystal clear. Chemical and physical changes in rock can result from the presence of subsurface water; for example, the leaching of limestone to form large underground caverns. This water can be hard or soft depending on ground conditions

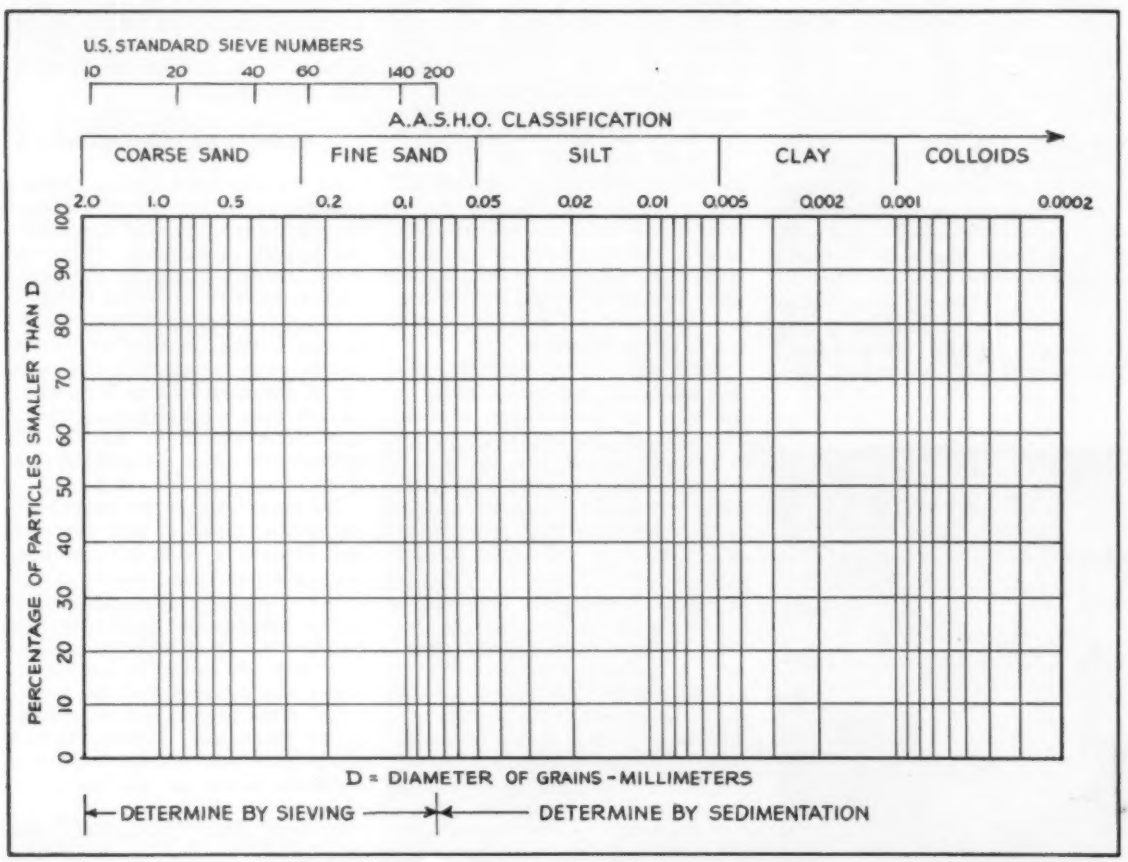


FIG. 1—Chart for plotting grain size accumulation curves.

and it may contain organic impurities. It is without a doubt a most important subject to the civil engineer for little if any of his work is entirely unconcerned with the subject.

Excessive subsurface water can be destructive and hazardous since it reduces the load-carrying capacity of the soil. Further, it can create excessive lateral pressures against vertical walls, the loss of soil stability resulting in slides and soil movement, and finally, in combination with freezing weather, it can foster tremendous lifting pressures ***(see Figure 3—F).***

Subsurface Drainage

Subsurface drainage is in many ways similar to surface drainage. The water that penetrates the pervious surface of the earth will percolate downward because of gravity until it reaches an impervious layer or barrier. The impervious layer forms either a channel or basin along which the water will flow or collect much the same as it would on the surface. The subsurface drain is used to divert the flow or tap a reservoir and thereby avoid the presence of unwanted water.

An understanding of the soil conditions in the area of a subsurface drain is necessary to assure that the installation will be effective. It is possible for the ground to be uniformly pervious, uniformly impervious, or a combination of both in layers, one on top of the other. The word "pervious" requires qualification since water will penetrate at a faster or slower rate depending on the physical composition of the particular type of soil.

Test Borings

These conditions are determined in the field by means of test borings made with a soil auger. Soil samples obtained in this manner show the composition of the soil, moisture content of the soil, height of the water table, and the depth of the impervious layer as well as its thickness in some cases. If, for example, the subdrain is for an airport runway or a road, the borings are usually made along the proposed line of the final installation. On the other hand, if the area to be drained is an athletic field or a parking lot, borings are made in some regular predetermined pattern to assure the designer of an adequate understanding of the problem. The number of such samples in either case is related to the seriousness of the problem and the importance of the project

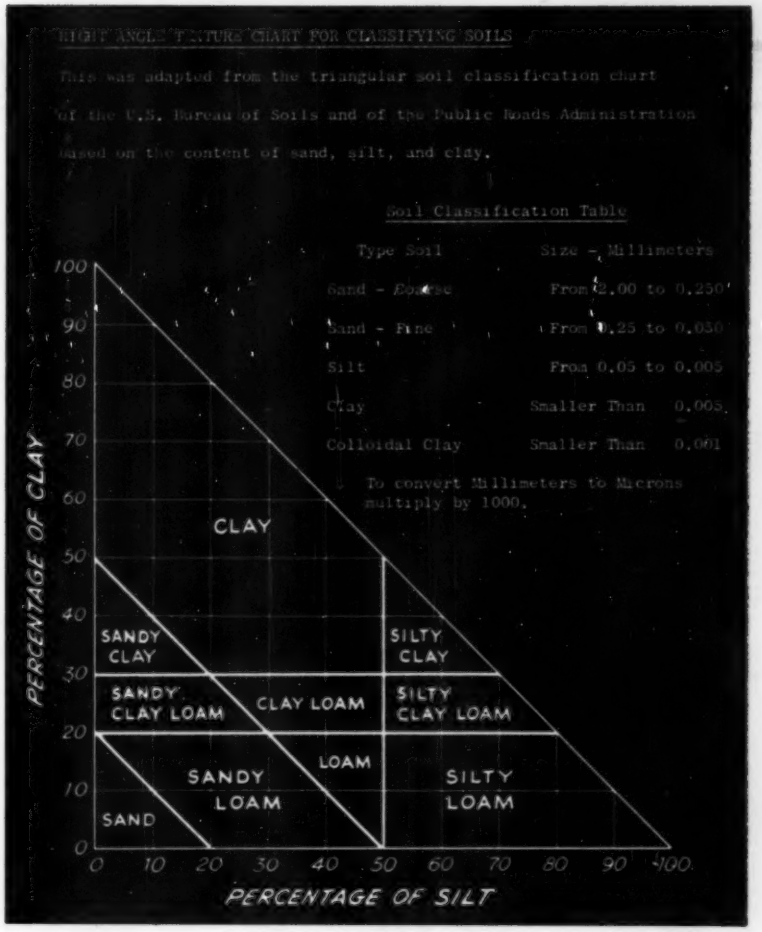


FIG. 2—Soil classification chart.

Since it is very unusual for the water table to remain at a constant elevation it is common practice to make the preliminary investigation in the "wet" season which usually is the spring. The design of the subsurface drain is therefore based on conditions which will provide adequate capacity for year-round operation.

Soil Studies

Classification of soil samples can be done in a laboratory or by the men conducting the drainage survey if facilities are available. A sample of the soil oven dried at approximately 105° C. is sifted through a series of sieves and the material retained in each is weighed. Another sample is subjected to a wet analysis. In this test the specific gravity of a suspension of the soil in water is measured by means of a hydrometer. Data are recorded at specified time intervals during the settlement of the suspended solids. In the wet analysis the soil sample is pre-treated with an oxidizing agent and an acid to remove organic matter. Addition of a dispersing agent prevents flocculation.

Results of the sieving test and wet analysis are plotted on a grading curve ***(see Figure 1)*** and finally classified by means of the Texture Chart ***(Figure 2).*** A relationship can now be established between the depth of the subdrain and the distance between subdrains necessary for satisfactory performance ***(see Table I).*** The mechanics of the sub-drain are expressed in an approximate relationship between the required capacity, the depth of the drain, the permeability of the soil and the distance between laterals by this equation:

$$S = \frac{600 \times k \times h^{2/3}}{C^{2}}$$

(Continued on next page)

where: S= the spacing between the laterals in feet between the limits of 25 and 5,000.

C= a coefficient, see table below

Depth of water to be drained inches	C	Depth of water to be drained inches	C
1/16	0.0026	9/16	0.0236
1/8	0.0052	5/8	0.0262
3/16	0.0079	11/16	0.0289
1/4	0.0105	3/4	0.0315
5/16	0.0131	13/16	0.0341
3/8	0.0157	7/8	0.0367
7/16	0.0184	15/16	0.0394
1/2	0.0210	1	0.0420

h = The depth of the drain in feet.

k = The permeability coefficient of the soil in feet per second between the limits of 10^{-2}. to 10^{7} The average range of these coefficients are:

Type of soil	Internal drainage	Coefficient
Clean gravel	Good	10^{2} to 1.0
Clean sands and clean sand and gravel mixtures	Good	1.0 to 10^{-3}
Very fine sands, organic and inorganic silts, mixes of sand silt and clay, and glacial till.	Good	10^{-3} to 10^{-4}
	Poor	10^{-4} to 10^{-6}
	Impervious	10^{-6} & less
Impervious soils modified by the effects of the weather and vegetation	Good	10^{-3} to 10^{-4}
	Poor	10^{-4} to 10^{-6}
	Impervious	10^{-6} & less
Impervious soils such as homogeneous clays below the zone of weathering	Impervious	10^{-7} & less

Table I—Perforated Pipe—Location of Laterals Average Practice for Various Soil Classes

Soil Classes	Percentage by Separates: Sand	Silt	Clay	Depth of Bottom of Drain in Feet	Distance Between Subdrains in Feet
Sand	80-100	0-20	0-20	2	100
				3	150
				4	300
Sandy Loam	50-80	0-50	0-20	2	85
				3	100
				4	150
Loam	30-50	30-50	0-20	2	75
				3	85
				4	100
Silt Loam	0-50	50-100	0-20	2	65
				3	75
				4	85
Sandy Clay Loam	50-80	0-30	20-30	2	55
				3	65
				4	75
Clay Loam	20-50	20-50	20-30	2	45
				3	55
				4	65
Silty Clay Loam	0-30	50-80	20-30	2	40
				3	45
				4	55
Sandy Clay	50-70	0-20	30-50	2	35
				3	40
				4	45
Silty Clay	0-20	50-70	30-50	2	30
				3	35
				4	40
Clay	0-50	0-50	30-100	2	25
				3	30
				4	35

This equation does not reflect the local variables such as the inaccuracies or inconsistencies in permeability, lack of uniformity of the soil, proximity of impervious strata, etc. It is, therefore, presented solely as a means to establish the relationship of the various contributing factors involved ***(see Figure 3).*** The equation can be used as a rough guide in the absence of other data.

Capillary and Gravitational Water

Soil is composed of both particles and voids. The behavior of the water in the soil will depend largely on the character of the voids. If the soil is composed of flat, rather than spherical particles, the channels would follow the long axis of the particles regardless of the slope of the strata. In the problem of the behavior of water in soil, it is essential to think of these voids as continuous—somewhat like tubes through the soil. For this reason, voids are usually called pores in this connection.

Soil Water

There are three kinds of soil water, namely: gravitational; capillary; and hygroscopic (or film water).

Gravitational water is free to move under the influence of gravity and is the only water that can be removed from the soil by means of drains. Gravitational water introduces problems with respect to stability involving both static and dynamic forces and, in addition, those of subsurface storage and loss.

Capillary water clings to soil particles because of surface tension. It reaches the soil particles when gravitational water passes through the soil or by a process known as capillary action. It is not affected by gravity. It will move in any direction, horizontally or vertically and can be removed only by evaporation, freezing, heating or by the application of tremendous pressure. Capillary water is always found in an area of the soil

Table II—The Height of Capillary

	Hours: ¼	1
Silt & very fine sand	2.7	4.7
Very fine sand	7.6	10.0
Fine sand	9.0	9.5
Coarse & medium sand	5.8	6.0
Fine gravel	4.0	5.0

directly above the water table. Therefore, it can be controlled by raising or lowering the elevation of the gravitational water ***(see Figure 3).***

Hygroscopic or film water results from condensation and is directly related to atmospheric conditions. This water combines with the soil and cannot be removed except by intense heat. It is interesting to note that this water will not freeze at —78° C. Hygroscopic water is of little importance to the engineer.

Table II demonstrates the rise of capillary water in dry soils of different textures *in inches* as reported in the Nineteenth Annual U. S. Geological Report.

Table III shows the relationship between soil texture, permeability and water holding capacity. This further illustrates that soils approaching a pure sand or gravel do not retain sufficient moisture or promote the degree of capillary action necessary for plant growth. This is of particular interest to the farmer as well as the engineer. The farmer will attempt to increase the water holding capacity, of such a soil by the addition of humus, clay or various binders to achieve a balanced supply of water, air and plant food. The engineer, on the other hand, may further augment the permeability of this soil by means of subsurface drains. The basic difference in the views of these men can be stated as follows:

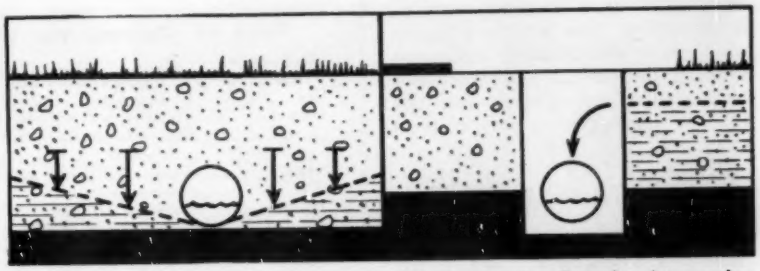
1. The farmer attempts to maintain a constant elevation of the water table by the application of irrigation and the principles of sub-soil drainage.
2. The engineer designs to reduce the elevation of the water table to some specific level, usually without regard to fluctuations below this level.

Laboratory apparatus is available for determining the water content of soil samples. To determine the moisture content corresponding to a limit of consistency, soil engineering lab-

Water Versus Elapsed Time

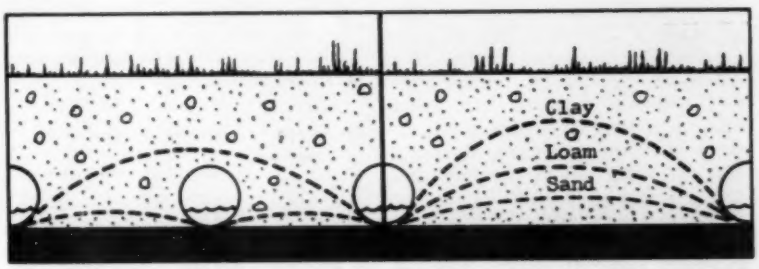
	Days				
2	1	3	8	13	19
7.0	20.0	30.0	45.0	52.0	56.0
12.4	21.0	23.0	26.0	27.5	28.5
10.0	11.6	13.0	14.3	15.2	16.0
6.3	7.5	9.0	10.0	11.5	12.5
5.3	6.4	8.0	9.0	10.0	10.8

FIG. 3—Principals of applied drainage.



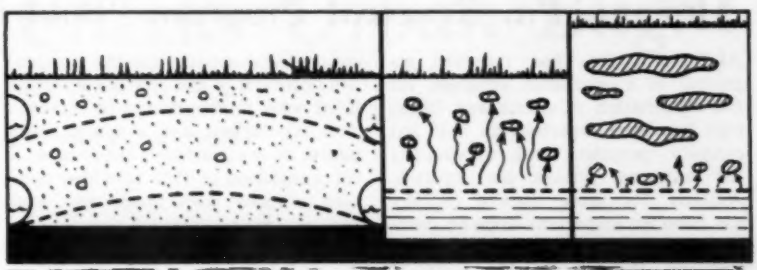
(A) Showing the effect of a drain on impounded water and drop in water table.

(B) Showing the effect of an intercepting drain—water flowing right to left.



(C) Showing the effect of lateral spacing on water table elevation.

(D) Showing the effect of soil composition on water table elevation.



(E) Showing the effect of lateral depth on water table elevation.

(F) Showing the effect of frost heave in poorly drained soil, caused by the upward pressure of ice lenses.

Table III—Comparison of Physical and Water Holding Properties of Soils

Texture of soil	Permeability (inches of water per hour)	Water holding capacity (inches per foot of depth)	Depth of soil wetted by one inch of water (inches)
Very Light	1.50 to 2.00	0.2 to 0.6	60 to 20
Light	1.00 to 1.50	0.6 to 1.2	20 to 10
Moderately Light	0.60 to 1.00	1.2 to 2.0	10 to 6
Medium	0.25 to 0.60	2.0 to 2.5	6 to 5
Moderately Heavy	0.15 to 0.25	2.0 to 2.5	6 to 5
Heavy	0.05 to 0.15	2.0 to 2.5	6 to 5
Very Heavy	0.01 to 0.05	1.9 to 2.4	6 to 5
Peat and Muck		3.0	4

oratories use methods developed about 1911 by a Swedish scientist, A. Atterberg. The Atterberg Limits are more or less arbitrary definitions limiting the various states assumed by a soil as it progresses from one limit of the degree of saturation to the other.

Liquid Soil Limit

When a cohesive soil is completely saturated it acts as a liquid. If the sample is permitted to dry it will shrink and gradually acquire the property of self-supporting form although it will offer little resistance to a change of shape under load. The transition from the liquid to the plastic state is a gradual one, with no marked division between the two. Atterberg arbitrarily defined the limit between them as—that water content at which two separated portions of a sample, in an especially designed dish, would flow together when struck a certain number of times. An apparatus developed by the Bureau of Public Roads is now generally used. It standardizes the procedure and minimizes the human element. When a soil sample passes from a plastic to a liquid state the water content of the sample is calculated as follows:

$$\text{Percentage of moisture} = \frac{\text{Weight of water} \times 100}{\text{Weight of oven dried soil}}$$

This then is known as the liquid limit of the soil.

Another method, less scientific, with which fairly good results can be obtained, relies entirely on the appearance and feel of the soil. Samples of the soil brought to the surface by the earth auger from various depths are observed and then squeezed in the hand. The resulting evidence of moisture is noted as pressure is applied. ***Table IV*** provides the criteria for determining moisture conditions by this method.

Table IV—Determination of Moisture—Squeeze Method

Degree of Moisture	Appearance and feel	Approximate amount of moisture
Dry	Powder Dry.	None
Humid	Crumbly; will not hold together	0% to 25%
Damp	Somewhat crumbly; but will hold together	25% to 50%
Moist	Forms a ball; will stick slightly with pressure.	50% to 75%
Wet	Forms a ball and is pliable; sticks readily; a clear water sheen will come to the surface when the ball is squeezed in the hand.	75% to 100%
Saturated	Free water will run from the sample when squeezed in the hand.	100%

EDITOR'S NOTE: Part II of this article covering drainage system planning will appear in the July issue.

Altoona, Pa. Renewal Program "Bold but Practical"

ALTOONA, PA. has reserved approval of a workable program for the elimination of slums and blight that has been described as bold but entirely practical and noteworthy for enlisting citizen participation. Altoona, for more than a century has been an important division mantenance center for the Pennsylvania Railroad. Recently this city of 77,177 (1950), midway between Harrisburg and Pittsburgh, has attracted considerable diversified industry.

The Altoona Housing Authority which maintains a 120-unit state-sponsored project, has been allocated 500 low-rent units by the federal Public Housing Administration. The project is now in the planning stage.

Altoona has full complement of codes and ordinances of fairly recent adoption, including building, plumbing, electrical and fire prevention codes, and a smoke control ordinance. A minimum housing code is scheduled for adoption in 1959. The city presently has six inspectors but it plans to organize a team of inspectors and enforcement officers from all the city departments now administering codes.

City planning in Altoona dates to 1916 when the city set up by ordinance its Department of City Planning. Various plans for the physical development of the city were formulated with a compilation of sub-division regulations and a zoning ordinance, now considered out-of-date. A reorganization in 1952 provided planning officials with funds and staff and a comprehensive community plan was prepared.

Regional Agency Formed

In July 1955, however, Altoona joined with five neighboring communities to form the Blair (County) Regional Planning Commission. Some earlier plans will be changed to conform to the overall plan for the Blair region. The master plan for the city of Altoona is expected to be completed by June 1, 1959.

Studies pertaining to neighborhood characteristics have indicated that some 20% of the city's housing is substandard. Future work will include a more accurate delineation of the neighborhoods and it will be undertaken jointly by the city and regional commissions and the Redevelopment Authority of Altoona.

The local Housing Authority will administer the service of relocating displaced families in decent, safe, and sanitary housing after renewal and clearance areas have been established. Within the citizens' participation program, special groups will be organized in areas where some type of renewal is indicated, and both paid and voluntary help will be used in this organization service.

Estimated net cost of the project is $2,290,717. This represents the difference between the cost of acquiring, clearing, and preparing the land for its new uses and the return from its resale at fair value. The $1,558,555 federal grant covers two-thirds of the deficit and includes an amount for aiding relocation. Torrington's contribution will cover the the remaining one-third of the deficit.

All federal funds involved are authorized by Title I of the Housing Act of 1949, as amended.

Firemen Wash Police Cars

THE LEAGUE of Wisconsin Municipalities reports that Glendale, Wis. firemen must wash the police squad cars.

Housing inspector at left, and fire inspector at right, find fire hazard in basement of large old apartment building. Five other members of team include plumbing, electrical, building, and health inspectors, and an assistant city prosecutor.

Chicago Checks Urban Blight

. . . by team inspection and housing courts

CHICAGO has been testing an important new weapon — the housing team inspection — in its fight to conserve middle-aged neighborhoods. Leaders of our local neighborhood groups feel that, if the courts cooperate fully, Chicago may at last have an effective way of dealing with serious building-code violators.

The new tool is being used on apartment buildings with long records of past violations, and on buildings being reported to be in serious condition by neighborhood conservation groups. Begun on March 1, 1957 by order of Mayor Richard J. Daley and Building Commissioner George Ramsey, it was tried first in Chicago's Hyde Park-Kenwood area, a neighborhood well advanced in its own urban renewal plans. In the first six months, more than $50,000 in fines were levied against serious violators and a great flurry of repairs began. During all of 1956 less than $2,000 in fines were levied against serious violators in the same area, and repairs were few and far between.

Under the new system, a team containing fire, plumbing, electrical, housing (maintenance), building (structural), and health inspectors, and an assistant city prosecutor go into each building. If hazardous conditions are found, the case is taken into court at once, the owner is fined heavily (up to $200 for each violation for each day it exists), and ordered to bring the building up to the code standards. The prosecutor's office insists that violators not be dismissed without fines merely because they now comply. (Highest fine to date in Hyde Park-Kenwood has been $9,600, but one building owner in another South Side neighborhood has been fined $107,000.)

By JAMES V. CUNNINGHAM, JR.
Executive Director
Hyde Park Community Conference
Chicago, Ill.
and GRACE TUGWELL
Hyde Park Community Conference

How It Began

Chicago put a new housing code into effect on January 1, 1957 and conservation groups immediately began looking for the best ways to enforce it.

One of the pioneer groups—the Hyde Park-Kenwood Community Conference was convinced that Chicago's traditional "complaint" system of inspection was not effective. This system was used for years, and it meant that a single inspector was sent out to view and act on a specific complaint, but only when such a complaint was made. Generally only a small part of a building's condition was reported as substandard. Thus, at any one time a judge might be told of a building's electrical violations for example. Months later

he might have a case involving the same building's inadequate maintenance. He seldom saw its total bad condition at one time.

This system was proving completely ineffective as a restraint to the spread of blight in the Hyde Park-Kenwood area which had been designated for conservation and where two slum clearance projects were nearing the construction stage. The reason was interesting. Speculative operators had begun to buy sound property in the community. These speculators had learned that extraordinary opportunities for profits were possible in urban renewal neighborhoods. They could exploit the properties by increasing rents, doubling occupancy, and cutting down maintenance for a few years and then sell to a city renewal agency for a big profit based on an inflated balance sheet.

20 Years of Failure

Two decades of failure to enforce the city ordinances had been responsible for the blight in Hyde Park-Kenwood and for the need to spend millions of public and private dollars on an urban renewal program. Now, even as that program was moving into its advanced stages, failure, through strict code enforcement, to discourage new speculators and slum operators from moving into the area was threatening its success.

In the fall of 1956, therefore, the Hyde Park-Kenwood Community Conference analyzed the record of the city's enforcement in the area for the previous eleven months. A written report summarized the findings and was submitted to city officials. It showed that in 149 cases involving 121 buildings, 36 fines averaging $43 were levied.

This report, together with a supporting memorandum was presented to the Mayor. Nine days later there was a fire in one of the buildings on which the Conference had been seeking action. An explosion injured ten firemen. Almost 80 persons, including 30 children, were left in the cold without homes. All of these people had lived in the building only a short time—having been moved illegally into the building before heat, water, and gas had been installed. Three weeks' garbage had piled up. The Conference had reported these conditions to the Building Department on six occasions—once in a personal visit—and the Building Department was preparing to move when the fire broke out. Reaction from the community was immediate and loud. City newspapers featured the story.

The Mayor acted the next day to put the team inspections into effect. When the Mayor announced the formation of "a special task force of five inspection teams to crack down on dangerous and substandard housing conditions," he said that "if the task force idea works out, it will be used in other neighborhoods."

Progress Report

To date 100 team inspections have been made in the Hyde Park-Kenwood area which represent about one-sixth of all the team inspections made in the nearly one year that such teams have been operating.

Mayor Daley was so impressed with the success of this experiment that he has requested and received funds in his 1958 budget for 12 permanent teams. Each team is composed of seven men: four from the Building Department's Bureau of Housing, Building, Electrical, and Plumbing; one each from the Fire Department, the Health Department, and the Corporation Counsel's Office.

Although there are a few difficulties still to be ironed out in the employment of this device, it meets a good many of the fundamental objections to the former system of code enforcement. A complete record of existing violations can be presented to a judge at one time, rather than piecemeal, as previously.

The quality of inspections is greatly increased. It is almost impossible to bribe seven men—and seven men miss few violations. Voluntary repairs are stepped up since owners realize the city has an effective enforcement weapon. Punishment is much surer and swifter. Inspection manpower is actually saved, since many re-inspections are eliminated.

Most important of all, a new climate is created in which all owners take a new attitude toward maintenance and repair.

The difficulties presently being encountered have to do mostly with the prosecution of the cases resulting from the team inspections, and to some extent, naturally, to problems of fitting this rather revolutionary device into the routine mechanics in both the Building Department and the Corporation Counsel's office.

Some municipal court judges are still of the belief that their function is primarily to obtain compliance, and are reluctant to collect large fines if buildings are brought into compliance. Fines being levied are often drastically reduced before collection takes place.

Neighborhoods are greatly encouraged by the tremendous interest shown by the Mayor himself. He has put the full prestige of his office behind strict code enforcement—and has received public support. These two factors may very likely change the climate of opinion in the municipal courts. If so, this new tool will be very effective.

How Do City Employees Really Feel?

COVINA, Calif. is constantly trying to improve its municipal services and operations. To get a better picture of how and where improvements might be made, the city recently conducted an annual survey of its employees asking their views concerning their work.

1958 Survey

Employees were polled on their working conditions; the functions of their department; their relations with superiors and fellow employees; and the efficiency of the city government's physical plant and equipment.

The results of the 1958 survey indicated that the municipal government of Covina is in excellent shape. The employees indicated general satisfaction with their jobs, their working conditions, and the activities and functions of their departments. So far as salary was concerned, the employees felt that they were making either as much as persons on the outside or just slightly less. As far as their superiors were concerned, the city workers felt that their own constructive suggestions were always welcome, the work of the employees was appreciated and any grievances were always properly handled.

The employees were divided on whether or not the average citizen of Covina recognized and understood the work and operations of their department. Opinion was also divided on whether the city government had an adequate supply of tools and equipment for its services to the citizenry. With the exception of the fire, police and street departments, the employees felt that their departments did not need to change any policies and practices in their services to the public.

A family of 10 moved from this dilapidated 3-room shack . . .

. . . to this low-rent housing project apartment.

Many People Will Move from Slums

. . . and pay more for good housing, but they need the opportunity plus persuasion

By KNOX BANNER
Executive Director
Little Rock Housing Authority
Little Rock, Ark.

WHEN the Little Rock Housing Authority first turned its attention to the Granite Mountain area of southeast Little Rock, preparing to begin a slum clearance and urban redevelopment project, it found itself faced with a unique problem: Granite Mountain, although within the city limits, was predominantly rural in character.

The 102-acre area was almost entirely residential in use but it lacked most normal living necessities. Utility services were almost nonexistent and the shacks in which the residents lived were dilapidated beyond description. Granite Mountain was the largest completely slum area in the city and probably in the state.

Although the area had been platted, streets had never been opened and lot lines had been largely ignored. To acquire the land, the Housing Authority had to wade through a hodgepodge of complicated and clouded land titles, delinquent tax deeds, squatters' claims and unsurveyed property lines.

Many of the residents lived off the land by raising chickens, hogs and cows, and by cultivating small gardens. In addition to the opposition or at least reluctance to move usually displayed by residents of urban renewal areas, they also clung stubbornly to their rural mode of living, refusing to move into urban areas.

In contrast to the residents of the Dunbar area in central Little Rock, where the Authority is on the verge of completing an urban renewal project, the residents of the Granite Mountain area had less education and less income and were unacquainted with such commonplace utilities as indoor plumbing, gas and electricity, and sewage disposal.

The efforts of the Authority's Relocation Office to help the displaced residents to find new and better homes were often resisted vigorously.

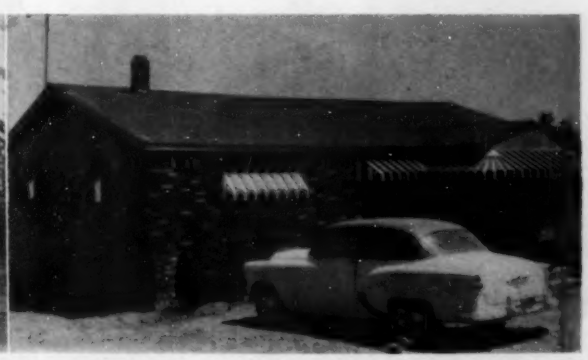
Case I

One of the more difficult problems in relocation was presented by a father with three young children, living in one of two shacks on a single lot. With an income of $200 a month, he and his children were crowded into a three-room shack that had no utilities. His rent was $10 a month.

The man was eligible to move into a low-rent public housing apartment in Booker Homes, located in the same general area of the city, but refused

(Continued on page 136)

A couple moved from this $1,700 structure . . .



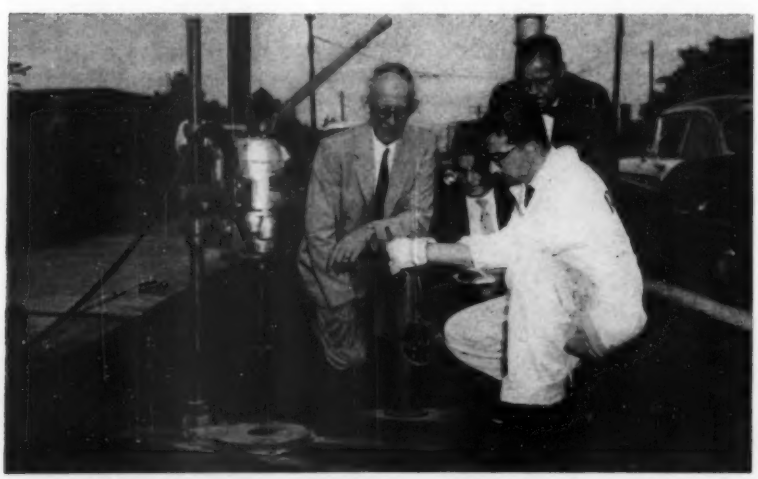
. . . to this home which they bought for $4,000.

After the pavement is thoroughly cleaned, a special distributor applies the surface coating mixture.

Philadelphia Bridge Receives

Quick-hardening material permits surface treatment with minimum traffic interference

By JOHN L. KEENAN
Assistant Highway Chief Maintenance, Philadelphia, Pa.



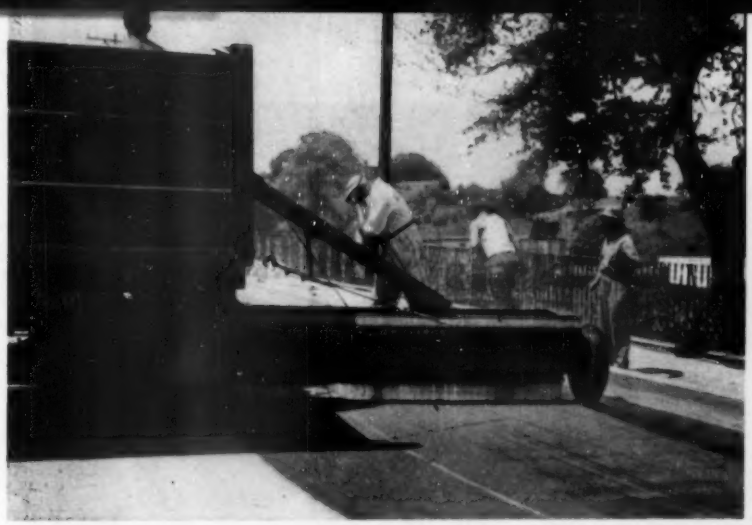
An engineer (white coat) tests for adhesive qualities before the watchful eyes of Deputy Street Commissioner Louis Schneider; John Keenan, assistant chief engineer, maintenance, and Howard Mintzer, Jr., bridge maintenance engineer (left to right).

FOR many years Philadelphia highway engineers have felt the need for a nonskid material that can be applied readily to existing road surfaces. Several years ago, Street Commissioner David M. Smallwood, the writer and other engineers in the Department became interested in a product known as Relcote when it was first in the development stage. We inspected various nonskid applications made in Connecticut, New York, New Jersey, and Pennsylvania. The excellent performance of these applications under heavy traffic, at varying periods of time after making the application, prompted us to use it on the Wyoming Avenue Bridge.

Application

Relcote, developed jointly by the Reliance Steel Products Corp. and Shell Chemical Co., is a resinous cement based on the epoxy resins in the form of a liquid polymer, which, on the addition of a curing agent or catalyst, sets up a hard, tough, adhesive solid. Application of this material presents no undue interference with traffic for it requires only one to two hours curing time, after which the treated area may be opened for use.

Before applying the material to a



The surface coating is covered with an aggregate consisting of aluminum oxide and a very hard, sharp sand.

Rolling forces the aggregate into the resins and catalyst mixture to insure a tight bond.

Skid-proof Treatment

concrete bridge deck or road surface, it is necessary to thoroughly clean the surface of oils, carbons and similar substances. This can be done with a suitable detergent, thoroughly flushing it off and grinding away any bituminous material not removed by the acid. Application proceeds when the pavement is completely dry.

A special distributor, that mixes the resins and catalyst in proper proportion and temperature, applies the material to the road surface through spray bars similar to those used for applying bituminous materials. This coating is immediately covered with an aggregate of very small size. The aggregate may be anything from sharp sand up to and including aluminum oxide. We used a combination of aluminum oxide and a very hard, sharp sand.

Twenty four hours after applying the antiskid surface we tested it for adhesive qualities. In this test, the concrete pavement failed at 300 psi with the adhesive remaining intact.

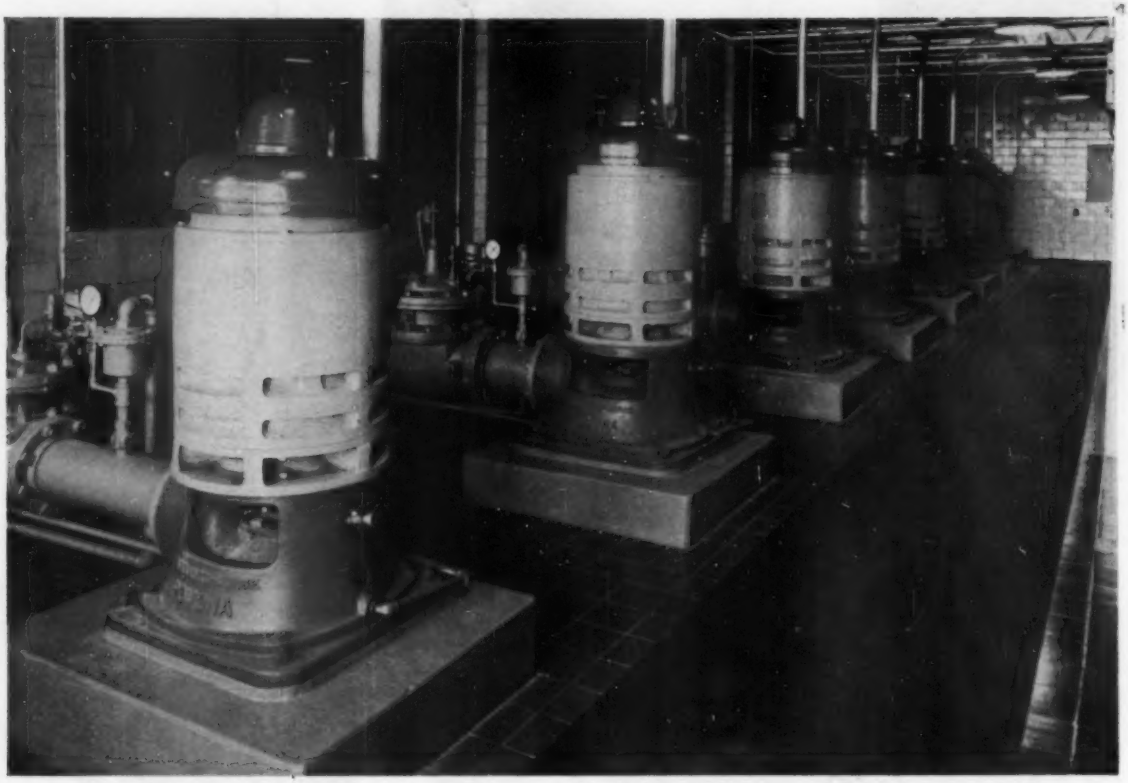
We also tested the surface course as to its antiskid qualities. This test was conducted on a thoroughly wetted roadway with two identical cars; one on the treated section and the other on an adjacent untreated section. Both cars were braked at 40 mph. The car on the treated section stopped within several feet while the car on the untreated section skidded several car lengths beyond the stopping point of the first vehicle, and would have gone into a spin had it not run onto the treated area of the roadway.

We also made test applications with Relcote on both asphalt approaches to the bridge without special preparation of the asphalt pavement. After nine months of heavy traffic both the concrete and asphalt surfaces treated give every indication of a long useful life of protection to the traveling public. The area covered amounts to approximately 32,000 square feet.

Film Available

The Reliance Steel Products Corporation of McKeesport, Pa., manufacturers of Relcote, have a color film showing the various steps used in placing the material on the Wyoming Avenue Bridge over Tacony Creek. This film would undoubtedly be made available to interested municipalities or private concerns.

Tests conducted under actual driving conditions proved nonskid qualities of the surface application.



The eight pumps in booster station No. 2 take suction directly from the newly constructed 1.5-mg reservoir.

Ample Storage Compensates For Limited Supply

New wells, reservoirs, mains and pumps end years of nip-and-tuck operations

By ROBERT W. QUINLAN
City Manager
Midwest City, Okla.

IT took three attempts, but we finally gained public approval of a bond issue to finance needed improvements to our water and sewerage facilities. After two failures, the newly elected City Council appointed a citizens' Fact Finding Committee to study the needs of the city and recommend a course of action.

The committee in turn engaged the firm of Collins and Flood, Architects and Engineers of Ardmore and McAlester, Okla. to prepare a preliminary report of our immediate needs. After accepting the report, working out financing details, and passing an ordinance requiring a $30 sewer-line connection fee to help defray construction costs, the City Council again presented it to the people. This time we conducted a publicity campaign handled by the Fact Finding Committee. Results: a 4-to-1 vote in favor of water improvements and a 1½-to-1 vote favoring needed sewerage improvements.

Our water comes from wells, which are not very productive. Ground conditions require a spacing of about 2,500 feet between wells. Engineering studies show that the well supply can be developed to serve a population of about 30,000 people. To satisfy the full ultimate saturation point of about 50,000 people will necessitate the development of a surface supply. Our population is about 25,000, and if existing growth trends continue, we'll have to consider development of another water source shortly after 1960.

Deep Wells Used

Prior to this construction, Midwest City obtained its water from 12 wells, all 750 feet deep, and two wells about 400 feet deep. The deep wells, with pump settings at 500 feet, average about 200 gpm each, and the shallow wells produce about 120 gpm each.

The new program called for eight more wells. To provide them, the

city awarded a contract to the Winter Drilling Co. of Hillsdale, Okla. These 750-foot deep wells have 10¾-inch O.D. casings and are cemented from bottom to top. The Atlas Gun Perforation Co. ran Gamma ray and brons neutron logs on each well to determine the location of good water-bearing sands. After our engineers selected the sands to be tapped, they ordered the wells perforated at the rate of three shots per foot in the selected sands beginning approximately 400 feet below the surface, and two shots per foot in the sand from 400 feet to about 280 feet below ground. The water is of higher quality at the lower depths and the supply more reliable. The logs permitted the necessary selectivity in order to keep from producing colored water from the shale and red beds that appear in this area.

We equipped each well with a Reda submersible pump; a Clayton check valve; a Sparling 6-inch Master flow meter; and fluid pressure and air pressure gauges. The pumps, rated at 250 gpm against a 600-foot head, are set at approximately 550 feet.

Well to Reservoir Mains

Because of the existing high head due to pump depths, a colored water problem and certain air conditions peculiar to our wells, we pump the water directly to storage rather than into the distribution lines. This required installing separate mains to connect both the new and old wells to the ground-storage reservoirs.

The city awarded a contract for this work to M. A. Swatek & Co. of Oklahoma City. This work included the laying of about 30,000 feet of cement-lined cast-iron pipe with roll-on type joints in diameters from 6 to 14 inches. We used 150-pound class pipe throughout.

With domestic water demand rates varying from 30% of average at night to as high as 400% of average for several hours in the evening, it became necessary to provide additional storage to level off this difference in demand. Then too, demand at times exceeds possible well supply by as much as 50,000 gpm.

Storage Tanks

Existing storage consisted of one 600,000-gallon capacity elevated tank, a 308,000-gallon steel ground-storage tank, another such tank of 85,000-gallon capacity, and a concrete ground-storage tank of 1,500,000-gallon capacity. To this we added a second 1.5-mg unit constructed adjacent to the existing one by the Utilities Engineering and Construction Co. of Oklahoma City. It is a rectangular prestressed-concrete tank set half in and half out of the ground. A 16-inch line between this and the older tank equalizes water levels in the two reservoirs.

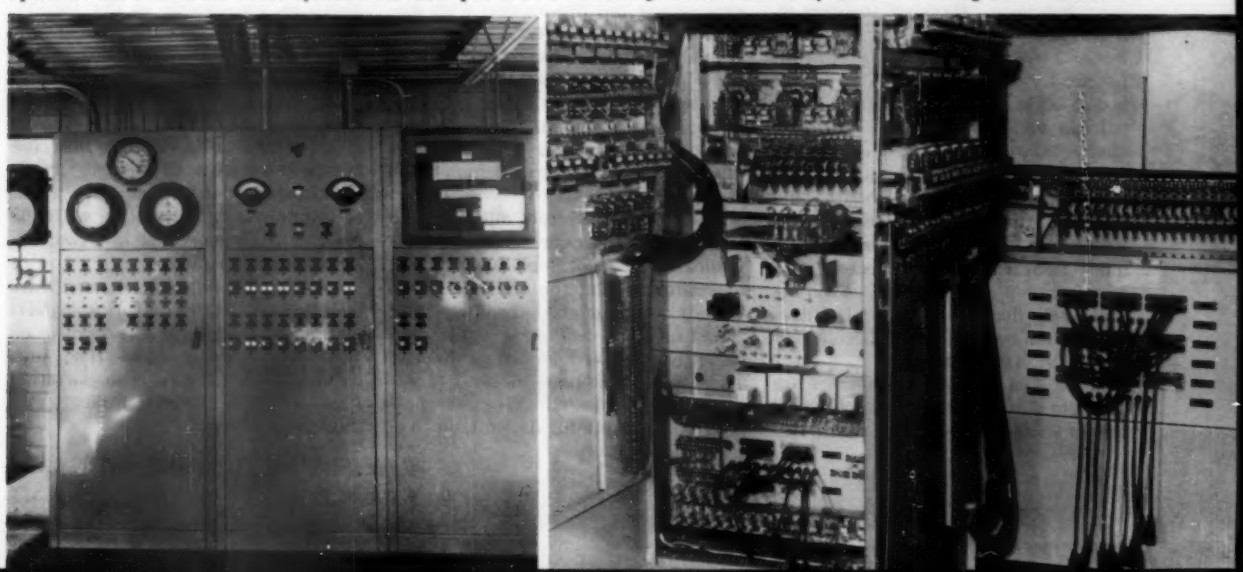
A pumping station, constructed on top of the new reservoir houses eight booster pumps having a total capacity of 7,500 gpm. All are Fairbanks-Morse Pomona vertical turbine units. Two are rated at 750 gpm each against a 200-foot head and six are rated at 1,000 gpm each at 225-foot head. They have shut-off heads of not less than 350 feet.

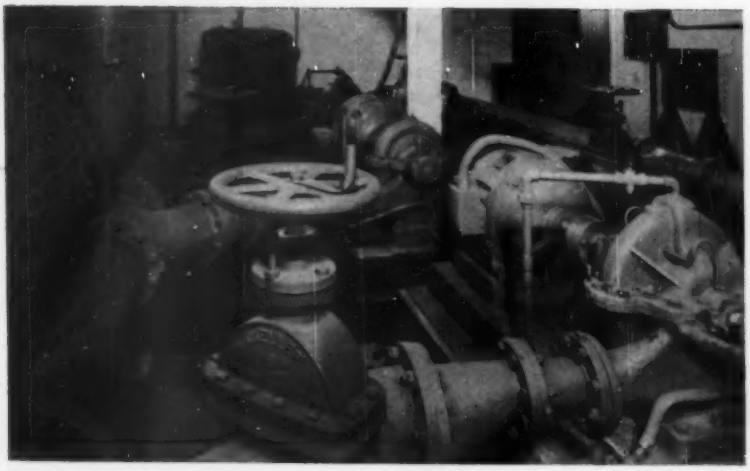
The old booster station, constructed adjacent to the old 1.5-mg reservoir, contains two 500-gpm pumps and one 700-gpm pump, the latter having both electric and gasoline power units. This station also houses equipment, materials, supplies and the meter repair shop. To pump station No. 1 we added two 50-hp, 750-gpm centrifugal pumps, bringing total output to 1,500 gpm.

An Automatic Control Co. system of controls operates the well pumps and also the booster pumps. The number of wells in operation depend upon the level of water in the reservoirs and booster pump operation is governed by pressures in the distribution system. Safety devices in-

Midwest City's elevated storage facilities consist of this 600,000-gallon tank. Total ground storage is about 3.4 mg.

Operators can control the entire system from these panels . . . containing intricate but easily accessible wiring and controllers.





Pumps of old booster station are used for standby purposes. Two 550-gpm units are driven by electric motors and the 700-gpm unit by electric motor or gasoline engine.

clude audio and visible alarms that warn of trouble in the wells or in the two booster stations. Additional equipment includes Westinghouse tank level indicators, Marshaltown Manufacturing Co. main pressure gauges, Multiple Manufacturing Co. Crispin air and vacuum valves, and Wallace & Tiernan chlorinators.

Midwest City experienced its greatest growth through the annexation of areas having their own distribution systems laid out for supply within that system. These were normally designed to meet the minimum requirements for fire protection. Our job consisted of connecting this series of small network into a single integrated system with mains of sufficient size to transport ample amounts of water from one or more central locations to all points of usage.

Our engineers recommended a perimeter-type system for this job. M. A. Swatek & Co. of Oklahoma City, contractor for the well and reservoir connecting mains, also handled this contract. The project consisted of the laying of about 37,000 feet of mains ranging from 6 to 16 inches in size, most of it being 12 inches or greater.

Following is the cost of the various projects:

Wells and Equipment	$155,983.90
Well Connecting Mains	107,648.49
Reservoir and Booster Station	264,230.81
Distribution Improvements	202,153.15
Total	$730,016.35

Funds for this and several minor jobs came from the $852,000 general obligation bond issue set up for water improvements. The work started under the administration of Mayor Marion C. Reed and completed under our present administration headed by Mayor Roger D. Bamford. Joseph M. Plank is city engineer and Roscoe Flinchum is superintendent of the Midwest City's Water Department.

Dallas Central Expressway Boosts Land Values

AN EXPRESSWAY increases land values in its immediate vicinity and encourages development, according to a survey conducted by the Texas Transportation Institute in cooperation with the Automotive Safety Foundation, and the Texas Highway Department. The work was supervised by William G. Atkins and involved the Dallas Central Expressway.

Prices of abutting land were substantially raised due to the expressway influence. Positive benefits attributable to the facility, but to a lesser degree, also occurred for nearby property for a distance of about six to eight blocks on each side.

Land valuations for tax purposes also reflect the influence of the expressway, again with abutting land showing very large benefits and other adjacent land lesser effects. Tax valuations lagged behind land prices more than would be expected in a less dynamic environment. This lag will likely diminish as potential uses anticipated in land prices become reality, Mr. Atkins believes.

Some early negative influence on market values may have occurred due to uncertainty as to the nature of expressways. The positive benefits that were registered in later years, however, more than compensated for any earlier adverse effects and suggest that the expressway's benefits will continue to increase.

Land use was altered greatly in abutting properties but a tremendous potential for further change is evident. The expressway influenced uses of nearby land to a significant but smaller degree. Re-use of improved land was common near the expressway but diminished with distance from the facility.

Businessmen along the facility were highly satisfied with their locations; none reported adverse effects on business. The attitudes of residents also were very favorable and dissent voiced by these persons was negligible.

The principal factors affecting the influence of the expressway on land values were prior land use and its overriding factor, zoning. Areas previously used for good dwellings and zoned for such use, for example, apparently received minor influence. The effect of zoing, however, is extremely complicated. Whereas permissive use might deter land use and land value change in some areas, it perhaps will encourage land use change and prevent negative benefits elsewhere, Mr. Atkins feels.

Several subareas exist in which a combination of factors operates to resist land use change. One of these is the large racial residential area transversed by the expressway near downtown Dallas. In addition to a stable business center, the old settlement's resistance to change is re-enforced by racial solidarity and its depth on either side of the facility. Favorable zoning (commercial and apartment) and fairly low direct costs of supersession will encourage re-use of land on a limited scale. Other areas of good single family residences and zoned for that use also will be slow to change. There is strong evidence that large areas of unimproved land will be withheld from urban use because of a complex of institutional factors.

The detailed data of the survey are contained in Bulletin No. 6, *Effects of the Dallas Central Expressway on Land Values and Land Use*, published by the Texas Transportation Institute, Texas A & M College, College Station, Texas.

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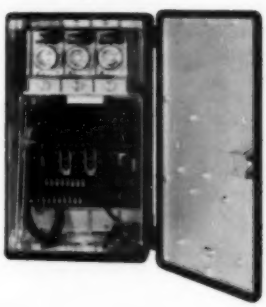
CONTROLLERS  AS FORMERLY SUPPLIED

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Cincinnati Adds 300 Manuals to Its 9,000 Automatics

By JOHN G. KRIEG
City Purchasing Agent
Cincinnati, Ohio

WHEN Cincinnati made its first installation of parking meters, on the basis of a study made at that time (1939) it was the opinion of the administration and of the operating department involved that the automatic-type meter would best serve the overall purposes of the city.

As I pointed out in my NIGP (National Institute of Governmental Purchasing) Letter No. 176, we have continued completely with automatic meters until our most recent purchase in January 1958, covering 300 manual meters for installation in a city-owned parking garage.

Currently, we have the following makes of meters in operation:

Karpark Superior	2,260 metered spaces
Karpark Unimatic	421 metered spaces
Dual Automatic	5,993 metered spaces
Mico Alfco-Twin	400 metered spaces

The purchase of manual meters for the parking garage was made partially because the nature of the installation indicated that this might be the more practical type of installation, and also with the thought of getting some actual maintenance and performance data on current models of manual meters. And, undoubtedly, the future position of the city regarding whether we would consider bids on either or both the automatic and manual meters will depend to some extent on our experience with this installation placed in operation May 1.

The winding of automatic meters is accomplished by meter maintenance and inspection men under the Division of Traffic Engineering, except in the case of the Mico-twin meters where it is necessary to have keys to the coin-box compartment. In order to check the meters for proper operation, these 200 meters are wound by the meter collectors. Collections from all meters are made by collectors under the supervision of the City Treasurer, who has sole custody of, and responsibility for, all keys to coin-box compartments. In our operation we use a sealed coin-box system of collection on all automatic meters, and the 300 recently purchased manual meters have key-lock coin boxes.

Give the Public the Red Carpet Treatment

By SOL J. WITTENBERG
Commissioner of Water
Toledo, Ohio

IN THE waterworks business, we sometimes appear more accustomed to receiving brickbats than bouquets. People are so prone to take our services for granted (as they are entitled to) that they seldom make any comment unless something goes wrong. If they send us comments on good work, that's news. We are trying to increase the amount of such news by doing a good public relations job in the Division of Water.

Each employee wants to render service that brings credit to the department and the city. We have found that he can do so much easier if he follows a few simple practices listed below:

- When greeting a citizen at the counter, do so by a cheery "Good morning", indicating an interest in him personally.
- When answering the telephone, don't just blandly say, "Hello". Instead, do use such salutations as:

"Water Department, Mr. Blank speaking."

"Water Department, Meter Shop, may I help you?"

If someone calls personally at our office and has a complaint, we try hard to treat him with as much consideration as possible. If the various departments cannot provide him with the answer or service needed, we usher him into a private hearing room where he can be seated, placed at his ease, and present his complaint, either to me or to my administrative assistant.

If someone telephones us with a complaint, members of the Division respond as courteously and promptly as possible. They obtain all pertinent information and properly record this on complaint forms provided, showing the name of the complainant, nature of complaint, date received, proper channeling, and disposition. We specifically try to avoid any controversies and always thank the individual for calling. These are policies that everyone follows, from the meter reader to the commissioner.

This move for better public relations has paid handsome dividends to Toledo's Water Division.

.....195...

"PLEASE EXCUSE US"

DUE TO AN "UNAVOIDABLE" EMERGENCY REPAIR, YOUR WATER WILL BE SHUT OFF

FROM: A.M. TO A.M.
P.M. P.M.

WE DISLIKE TO INCONVENIENCE YOU.

HOWEVER, YOUR WATER DEPARTMENT IS ON THE JOB AND AS QUICKLY AS POSSIBLE SERVICE WILL BE RESTORED.

WE APPRECIATE YOUR COOPERATION ON THE ABOVE MATTER.

SOL J. WITTENBERG
COMMISSIONER OF WATER.

A card like this eases public irritation when water crews have jobs to do.

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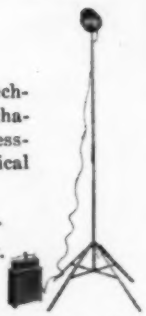
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Write for literature and prices. Distributorships available.

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Motor driven paddle-type bin level indicator
For automatic bin level indication or control of bulk materials. Particularly suited to applications on bins subject to pressure or vacuum.
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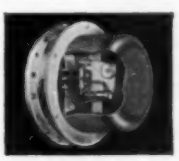

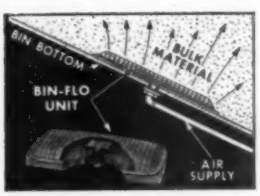

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The Lights that REACH OUT to say "Welcome!"

New Crouse-Hinds THERMAL CONTROL

Beam patterns are actuated by a simple thermal device which aims toward runway center when lighting intensity is increased . . . directs beam along runway edge when intensity is diminished. This device replaces the reversible electric motor formerly used, eliminates miles of 3-wire control circuitry, pares installation costs to a minimum.

NEW CROUSE-HINDS Type HRC

High Intensity Runway Marker Lights

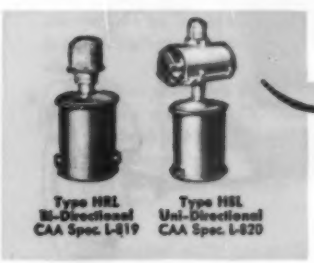
MAKE LANDINGS SAFER

Type HRC markers deliver a higher light output from 500-watt, 115-volt prefocus lamps. Their 137,000 candlepower illumination can be seen 2,360 feet away by the pilot, with ⅛-mile night time visibility.

The tower operator controls brightness and directional pattern of HRC illumination by means of a control panel which includes an indicator, calibrated in degrees of weather visibility.

Under normal conditions, lights burn below full capacity, and beams focus directly up and down runway edges.

In bad weather, when the tower increases brightness to full, the beam pattern automatically "toes in" toward the center of the runway—providing light to pilots where it is most needed under poor visibility conditions.



HIGH INTENSITY CROUSE-HINDS FIXED-FOCUS RUNWAY MARKERS

Five-stage brightness control (remote) on each of these markers meets the requirements of varying visibility conditions

Call on Crouse-Hinds for planning aid and cost estimates by a field engineer. Crouse-Hinds makes all three types of high-intensity runway markers, plus a wide selection of airport lighting equipment, including floodlights, ceilometers and transmissometers.

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Analysis of Street Lighting Versus Accidents

IN many cities studies have been made to determine what effect the illumination of a roadway has upon the nighttime accident rate. The task is difficult because of the presence of variable factors which also influence the nighttime accident rate. Careful analysis of traffic accident records shows that accident rates at night are decreased as a result of improved lighting.

Accident reports from the Traffic Section of the Chicago Park District show the value and importance of higher levels of street lighting in reducing the nighttime accident rate. On Michigan Boulevard between the river and 12th Street where the average lighting level was 0.144 footcandle, the night accident rate per million miles of travel for all accidents was 17.9. Between 12th and 16th, where the light level was 0.350 footcandle, the accident rate was 11.9; and in the section from 16th Street to 22nd Street which had an average lighting level of 0.88 footcandle, the accident rate was 9.5. Therefore, a definite tendency to reduce the nighttime accident rate by increasing the average lighting level was observed.

Experience of Chicago Park District

A 19-year record for all boulevards and drives of the Chicago Park District shows that the increase in traffic volume at night results in an increase of the night accident rate in the same proportion as the day rate.

Prediction of future accidents based on this correlation shows that the nighttime accident rate of 1949, without improved lighting, would have been approximately 13.3. Traffic records reveal that the night rate for 1949 was actually 2.49. As a result of improved lighting an 81% saving in fatal and nonfatal accidents was realized.

Comparative Data

Cost of relighting Chicago Park District boulevards compared with savings resulting from a reduction in nighttime accident rate can easily be determined by two sets of data. One is these costs set up by the National Safety Council:

Each death	$22,600
Each nonfatal injury	1,250
Each property damage accident	190

The second set consists of accident data obtained from Traffic Section of the Chicago Park District for the year 1949 for all boulevards:

Fatal	40
Nonfatal	1,290
Property damage	4,365

The cost of relighting the Chicago Park District boulevards is indicated by a typical installation recently completed, on which the costs were as follows:

	Material	Labor	Total
Lamppost complete, including luminaire, lamp and ballast	$260	$110	$370
Lamppost foundation	22	80	102
Total—per lamppost	$282	$190	$472

The total cost of the relighting was 205 miles times $50,000 per mile, or $10,250,000. The annual costs of nighttime accidents were as follows:

Fatal	40 @	$22,600——	$ 904,000
Nonfatal	1,290 @	1,250——	1,612,500
Property damage	4,365 @	190——	829,350
Total Cost			$3,345,850

Assuming, from results obtained in previous calculations, that approximately 70% of the nighttime accidents could be eliminated by improved lighting:

Possible Annual Saving—70% of $3,345,850 = $2,342,095

Therefore in a period of less than five years, the complete cost of relighting all boulevards would be balanced by the savings in nighttime accidents. The elimination of this menace to night driving and the essential planning of an extensive program of street lighting is a responsibility resting upon every citizen and all who are working in the best interest of the general public.

EDITOR'S NOTE: This article is excerpted from a paper by Francis D. Wyatt and Edmund Lozaho entitled, "Effect of Street Lighting on Night Traffic Accident Rate", originally published in *Night Visibility*, Highway Research Board Bulletin 146.

Fluorescent-Lighted Cloverleaf

THE first fluorescent-lighted cloverleaf intersection is said to be in Fort Wayne, Ind. It includes two miles of roadway at the eastern edge of Fort Wayne. The complete lighting system consists of 113 luminaires, with lamps of 23,000 lumens over the roads, and eight underpass fixtures, with lamps of 10,600 lumens.

During the final stages of construction of the cloverleaf in 1956, it became apparent to city officials that a lighting system was needed on the cloverleaf to insure safety. The Board of Works, under Bernard J. Swanson, instructed J. H. Hinman, chief electrical engineer, City Utilities, to prepare a lighting proposal. Because the cloverleaf is on state highways and partly out of the city limits, the City Utilities also presented the plan to George T. Young, engineer of traffic signals of the State Highway Department. The department agreed to pay a monthly rental bill for half of the lighting system.

The factors which influenced the engineers' decision

L-M'S OPEN TYPE SUBURBANAIRE unit provides highly efficient lighting, with choice of mercury vapor or incandescent lamps, scientifically designed optical system, and low original cost and simple maintenance. Also available with photoelectric control.

ONE OF THE L-M SUBURBANAIRES that light the 24 blocks of Mulholland's beautiful new Oakdale Subdivision, Oak Lawn, Ill. Multiple service is all underground. Knott & Mielly, Chicago, were the electrical contractors in this highly attractive, efficient installation that helps makes the homes in this subdivision more salable.

Subdivider Chooses L-M Suburbanaire To Light New Oak Lawn, Ill., Development

To provide modern, efficient lighting with economical maintenance, Clem B. Mulholland, Inc., selected the L-M Suburbanaire unit to light its new Oakdale subdivision in Oak Lawn, Ill. Knott & Mielly, Chicago electrical contractors, made the installation.

Helps Sell Homes

The L-M units were selected, and the lighting system was planned, to provide safety and added nighttime beauty. The street lighting was a strong selling feature. That this is effective is indicated by the fact that in a neighboring subdivision that is similar but not lighted, homes do not sell nearly so well as in Mulholland's well-lighted Oakdale subdivision.

Luminaires are mounted on 8-foot upsweep brackets on 25-foot metal poles. Service is multiple, on six photoelectrically controlled circuits. All wiring is underground. Normal spacing of the lights is 300 feet, which provides a luminaire at each corner and in the center of the block.

The whole lighting program has been most gratifying to the subdivider, and the residents who have purchased Oakdale homes, and to Village Manager Camille Andre and other officials of the Village of Oak Lawn, who heartily approve the choice of lighting.

Get Complete Information

Many subdividers have had similar experiences with the use of lighting as a selling feature. L-M offers a full line of luminaires of all types—incandescent, mercury vapor, and fluorescent—for rural, neighborhood, shopping center and highway lighting, together with application engineering service. Call the nearest L-M office for a lighting engineer; or write Line Material Industries, Milwaukee 1, Wisconsin. In Canada, Canadian Line Materials, Toronto 13, Ontario.

McGRAW EDISON

334

LINE MATERIAL Industries Outdoor Lighting

McGRAW-EDISON COMPANY

to choose fluorescent lighting for Fort Wayne were:

- More lumens per watt, which means lower energy costs.
- Longer lamp life, which means lower lamp and maintenance costs.
- Better quality light, more "seeability".
- Use of the newest type of lighting.

The broad distribution pattern of fluorescent luminaires is effective in lighting the complex configuration of interchange roadways and "islands." Also the low brightness permits the motorist approaching the interchange along an unlighted roadway to adust quickly and comfortably to the higher light level.

The luminaires are mounted 30 feet high on western red cedar poles.

It is estimated that the total cost of this installation will be $40,000; operation, including energy and maintenance, will be $4,000 a year.

It's Light Reflected That Saves Lives

By W. B. ELMER
Wheeler Reflector Co., Boston, Mass.

Footcandles are the measure of light falling on any surface; footlamberts measure the light reflected, against which a car or pedestrian is seen

SOME engineers question whether footcandle illumination provides a sufficient criterion of visibility and they propose that pavement brightness be substituted. The accompanying table is proposed as a possible satisfactory guide to this end. The table is based on posted speed limits rather than actual measured speeds.

Footcandle and Footlambert

To understand the suggested revision, let us first remember and consider what a footcandle is. A footcandle is the quantity of illumination falling on a surface one foot distant from a source of light having an intensity of one candle power. Hold a book one foot from a candle, and you will observe what one footcandle of intensity is. The footcandle is the illumination falling on the page and is independent of the quality of the page. If the page is black with white type, or white with black type, or white with gray type or black with dark gray type, the illumination is still one footcandle.

The brightness of the page, produced by this footcandle of illumination is measured in footlamberts. The brightness of a reflecting surface in footlamberts is the product of illumination in footcandles times the reflection factor of the surface at the particular angle of observation. If the page is black its reflection factor is very low and its brightness will be low. If the page is pure white, the brightness will be much higher and the footlambert value will be nearly equal to the footcandle value.

Footcandle As A Criterion

When we transfer this simple example to a street surface, we can begin to realize the narrow job performed by the footcandle illumination as a criterion of lighting effectiveness. The footcandle disregards the color of the pavement whether shiny or dull, rough or smooth. It also disregards the directions in which the illumination strikes the pavement, which has a

Yardsticks for Street Lighting Performance

Average Horizontal Footcandles (Lumens per Square Foot)

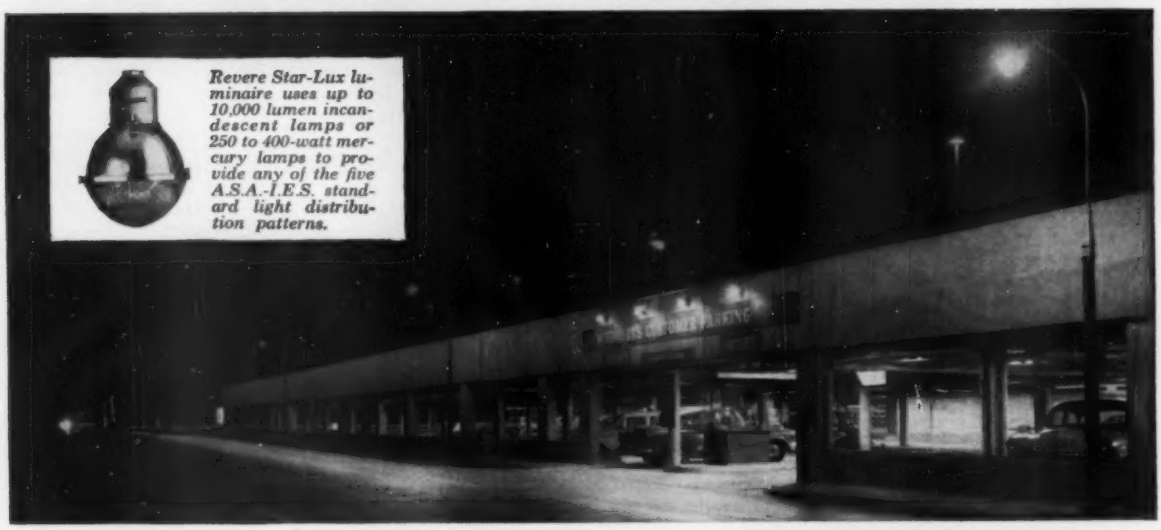
Traffic Density — Maximum Vehicles Per Hour		150			150-500			500-1200			1200-Up		
Pedestrian Traffic		L	M	H	L	M	H	L	M	H	L	M	H
Posted Speed Limits MPH	15-25	0.1	0.2	0.4	.2	.4	.6	.4	.6	.8	.6	.8	1.0
	30-50	0.2	0.4	0.6	.4	.6	.8	.6	.8	1.0	.8	1.0	1.2
	55-Up	0.4	0.6	0.8	.6	.8	1.0	.8	1.0	1.2	1.0	1.2	1.4

Average Footlamberts 5 feet Above Horizontal, Distance 200 Feet

Traffic Density — Maximum Vehicles Per Hour		150			150-500			500-1200			1200-Up		
Pedestrian Traffic		L	M	H	L	M	H	L	M	H	L	M	H
Posted Speed Limits MPH	15-25	.02	.04	.08	.04	.08	.12	.08	.12	.16	.12	.16	.20
	30-50	.04	.08	.12	.08	.12	.16	.12	.16	.20	.16	.20	.24
	55-Up	.08	.12	.16	.12	.16	.20	.16	.20	.24	.20	.24	.28

Daytime scene of River Forest, Illinois street using Revere Star-Lux incandescent street lighting luminaires on converted concrete poles.

REVERE PLANNED STREET LIGHTING

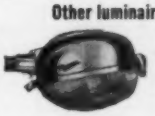


Revere Star-Lux luminaire uses up to 10,000 lumen incandescent lamps or 250 to 400-watt mercury lamps to provide any of the five A.S.A.-I.E.S. standard light distribution patterns.

Planned street lighting demands different types of lighting for different traffic conditions. As the night photograph shows, the Revere Star-Lux provides moderately-traveled streets with uniform, moderate-intensity lighting . . . efficiently and economically.

The Star-Lux is a versatile and efficient member of the reliable line of Revere street lighting equipment. Recently-developed features of the Star-Lux include a built-in ballast compartment in the fixture head and a twist-lock plug in the head to accommodate a photo-electric control unit. Write for Revere Street Lighting Catalog.

Other luminaires in Revere's complete line



For heavily-traveled streets—Revere Endoval uses 11,000 or 21,000 lumen mercury lamps for high level illumination. Reversible slip-fitter for mounting horizontally or with 10° tilt.

For residential streets—Revere Urban-Lite makes efficient use of 100, 175 or 250-watt mercury lamps for uniform light in areas where lower intensity light is adequate.

Revere ELECTRIC MFG. CO.

OUTDOOR LIGHTING

Revere Electric Mfg. Co. • 7420 Lehigh Ave. • Chicago 31, Ill.

Available in Canada thru Curtis Lighting, Ltd., Leaside, Toronto, Ontario

tremendous bearing on the resulting brightness of the pavement.

The purpose of street lighting is not just to spread a layer of "footcandles" on the pavement, but to produce visibility on the streets and highways at night. Visibility is obtained by creating brightness contrast between obstacles and the background. Pavement brightness is much more closely related to nighttime visibility than footcandles.

The relation between footcandles illumination and footlamberts of pavement brightness is indeterminate unless the direction value of the illumination is specified. Pavement brightness is determined not by footcandles alone but by footcandles in specified directional relationship with the observer.

A given footcandle illumination in one direction will leave the pavement relatively dark, whereas in another direction it will produce strong pavement brightness. If a luminaire projects the bulk of the light toward the driver, the ratio of pavement brightness to total lamp-lumens is greatly increased.

The new table would make the choice of criterion optional by the designer. In this way those engineers who base their lighting results on a closer assessment of visibility could use the footlambert table accompanying this article.

Phoenix Relighted

PHOENIX has installed 8,757 new street lights in the past seven years, to become one of the best lighted cities in the nation. The modern street lighting program was started in August, 1951, and was reported in THE AMERICAN CITY for March 1952, December 1953, and December 1955. There were 88 installations made in March 1958.

The program provides adequate lighting throughout the city. Lights are at each intersection in the residential areas while blocks longer than 300 feet have one or more lights in the middle of the block.

Included in the cumulative total reported at the end of March were 4,457 lights installed on 87.5 miles of arterial streets, 4,229 residential installations and 71 alley lights.

Phoenix annexed 16.23 square miles of fringe area in April. Plans are now being made to extend the lighting system to these areas.

ALBERT R. PIERCE
Administrative Assistant to the Public Works Director

You Can Study Out Your Own Street Lighting System

WANT to save money and yet have good street lighting?

You can study up on the subject by writing for four *Cost of Lighting Analysis* data sheets from Westinghouse Electric Corp., Lighting Div., Edgewater Park, Cleveland, Ohio.

The data are for lighting residential and secondary streets, which comprise 90% of total street mileage. Each sheet gives 40 lines of facts classified under:

- Description of Lighting Systems
- Basic Data
- Initial Cost
- Annual Fixed Charges
- Annual Operating Costs
- Total Relative Costs

Comparison I—6.6-ampere series system

Cost Analysis CA-5703-S gives a cost comparison first on a 6.6-ampere series system. Spacing between units is 125 and 250 feet. Comparison for each spacing is made with a 6,000-lumen filament lamp and a 6,800-lumen mercury vapor lamp.

It is of interest to note a few of the differences between these two lamps. ***First,*** *Line* 6, *"Lamp Life"*—filament 1,700 hours, mercury 6,000 hours. ***Second,*** *Line* 7, *"Watts per Luminaire"*—filament 341 watts, mercury 212 watts. ***Third,*** *Line* 11, *"Average Footcandles"*—filament 0.48 FC, mercury 0.66 FC for 125-foot spacing, and 0.24 FC and 0.33 FC for 250-foot spacing. Although the uniformity is somewhat better with the filament lamp unit, the uniformity of the mercury is well within the ratio for this class of street. ***Fourth,*** *Line* 37, *"Total Annual Cost"*—and *Line* 40, *"Relative Annual Cost per Footcandle"* which, after all, is what a city buys—cost of light on the roadway.

Comparison I—multiple system

Again, *CA*-5703-*S* gives the same comparison using a multiple system. It happens that of the two systems, the multiple is cheaper per footcandle of light delivered to the street and represents 100%. All the others are related to this lowest cost method.

All these calculations use an energy cost of 1c per KWH. This in most cases is low, but using this rate as a "unit of one" it is easy to correct this item to a particular rate. The higher the energy rate, the more favorable the mercury becomes.

Comparison II—seven methods of lighting, 3/10 footcandle maintained

CA-5704-*S* offers another comparison, using the same roadway, but with seven methods of lighting, all to provide 3/10 footcandle maintained.

The lamps are 4,000-lumen filament and 3,300-lumen mercury, in both enclosed and open luminaires. *Line* 40 reports that the enclosed mercury is the cheapest per footcandle delivered to the road, and represents 100%. The filament enclosed unit is 141%; the filament open unit is 160%, and the mercury open unit is 190%. Again, the enclosed mercury gives more per annual dollar spent.

Comparison II—seven methods of lighting, spacing fixed

Another comparison on the same street, with the spacing fixed, shows seven methods of lighting. The illumination varies among the different systems; but

again, the enclosed mercury fixture and lamp gives a better annual cost per footcandle maintained on the street. This system also gives the highest average footcandles maintained.

Something new that provides still a greater saving is a ballast built into the unit for multiple service of 100-watt and 175-watt mercury lamps. Not only is the luminaire with built-in ballast cheaper than the luminaire and separately mounted ballast, but installation is greatly simplified.

Still another combination is built-in ballast and built-in photo-electric control. This permits taking the power supply from the residential service.

Fluorescent Lamps In a Deep Freeze

Westinghouse engineer, Tom Heine, is shown with Henry Wenson, Port of New York Authority engineer, when test proved that fluorescent lamps can withstand cold weather. It's ten below in this Westinghouse freezer.

LAST summer, the Port of New York Authority asked: ***Can fluorescent lamps withstand the extremely cold temperatures at northern airports?*** Westinghouse set up operation "lamp freeze". Rows of blue, instant-start Slimline fluorescent lamps were placed in a large freezer. The temperature was lowered to 15° below zero. Special wiring was used to simulate the actual circuits used on the airfield.

After testing for several weeks, Westinghouse and the Port of New York Authority agreed that they had the answer to the problem, and fluorescent lamps were installed at New York's International Airport. Westinghouse is one of three companies that provide these lamps at Port Authority airports. Latest reports indicate that, nationwide, fluorescent lamps may be replacing incandescents on airfields.

Good Utility Promotion In Connecticut

TOWNS served by the Connecticut Light & Power Co. can be placed in either of these two categories:

1. Towns having an active interest in street lighting for a period of years.

2. Towns having little or no interest at any time prior to our 1954 promotional effort.

Most of our towns fall into the latter classification, and it was this disinterested group that in a large measure was responsible for the ultimate success of our promotional program.

Bristol Tries

A typical town fully conscious of the values of street lighting is ***Bristol, Conn.*** In fact, at the time that a promotional program was discussed for Bristol, it was thought that it probably would not only be effective from a lighting viewpoint but would improve public relations. Both objectives were achieved.

Within a month a follow-up call was made on the municipal officials to discuss any problems that had arisen since the meeting. The comments were enthusiastic. A trial installation of 10 fluorescent luminaries at a dangerous intersection resulted in the complete relighting of Bristol's main streets with 64 additional fluorescents. By 1959, Bristol will be "code lighted" in all respects and the people will reap the benefits of a safer community.

Other Municipalities Reap Benefits

Even more inspiring results came from municipalities classified "disinterested", mostly because of budgetary limitations. A few wanted to retain the colonial appearance of their towns. Others felt that their towns were far enough removed from main highways that increased illumination was not necessary. It was from this disinterested group that much of our success resulted. Approximately 95% of all town officials in this category came to our meetings. Our discussion periods proved most effective at these meetings. Each municipal official had one outstanding characteristic—a deep sense of responsibility to his community. He was virtually interested in anything that would improve existing conditions.

The over-all results from our program have been gratifying in every way. The opportunity of talking with community leaders cannot be overlooked; and we feel that better relations were achieved and solidified. In many cases the information gained from the meetings furnished public officials with data to substantiate their request for a larger budgetary allotment for municipal street lighting.

Any utility that hasn't attempted to promote street lighting is overlooking a wonderful opportunity.

R. E. BALLARD
Street Lighting Engineer
Connecticut Light & Power Co.
Berlin, Conn.

EDITOR'S NOTE: Connecticut's utility promotion program will be presented in greater detail in an early issue of THE AMERICAN CITY.

Down Fast—Stay Fast!

there is no other parking meter like **PARK-O-METER**

PARK-O-METERS are completely *automatic* in operation . . . accurate under all conditions . . . unaffected by any weather conditions . . . sturdy beyond expectation . . . theft and tamper proof.

They are convertible to meet every time and rate combination including Park-O-Meter's EXCLUSIVE Split-rate setting which permits charging one rate for a specific period with a lower rate for extended time.

NO EXPOSED WORKING PARTS to be affected by weather or to tempt vandalism.

ADJUSTABLE to any coin-time combination or rate change without shop overhaul.

SEPARATE SEALED TIMER permits instant on-street adjustment without loss of meter service.

COIN SLOT CLOSURE keeps meter in operation even in freezing rain, sleet, snow and ice.

EASY, ONE-HAND OPERATION Coins move under positive, automatic power through operation cycle.

ANY TIME LIMIT from 6 minutes to 72 hours.

MINIMUM SERVICE. Park-O-Meters require less service than any other meter.

LARGE EXPIRED SIGNAL enables patrolman to detect violations without dismounting from cycle.

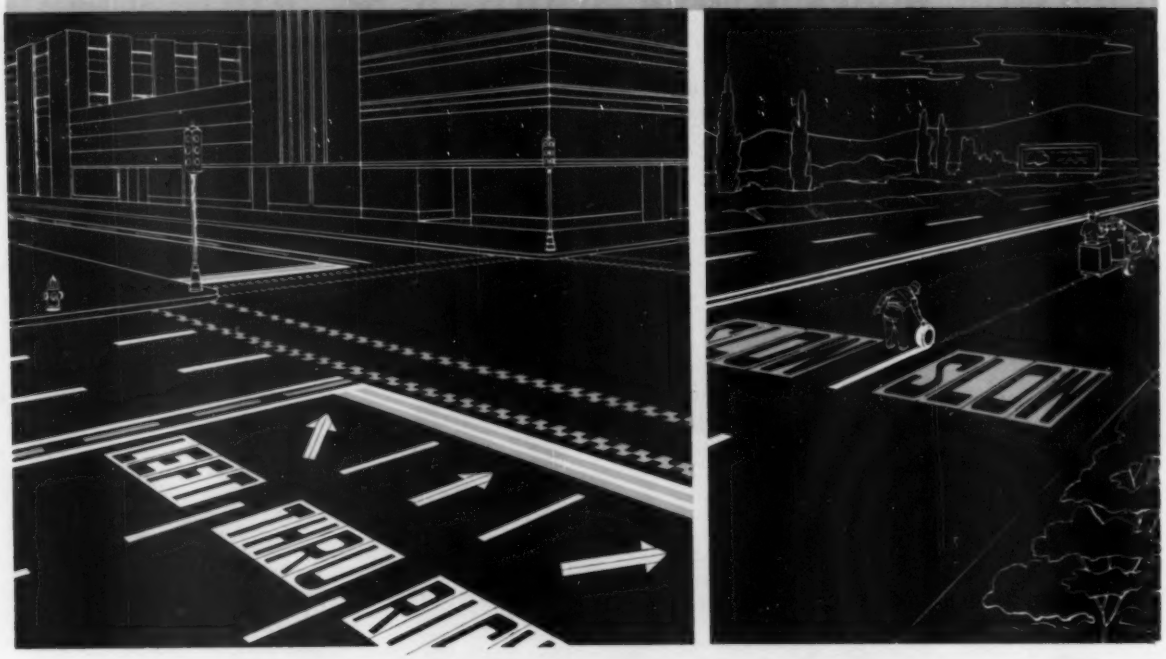
to bring your parking meter system up to date . . . and keep it that way . . . install PARK-O-METERS

ASK US FOR FREE DEMONSTRATION OR TRIAL. NO OBLIGATION ON YOUR PART.

PENNY
NICKEL
DIME
TOKEN
QUARTER

Any one or more, or all four coins and/or tokens through the single coin slot.

Down Fast—Stay Fast!



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plastic NEFSLABS® TRAFFIC MARKERS, STRIPS, ARROWS *and* NEFMATS® ONE-PIECE TRAFFIC LETTERS

NEW FAST APPLICATION

Now available with a factory coating of adhesive already on their backs for faster and easier application, NEFSLABS and NEFMATS are becoming more popular than ever for all traffic marking. Time and cost are reduced to a minimum by this new precoating feature which eliminates adding any adhesive on the plastic itself.

Our cold, quick-drying adhesive sprayed or brushed on the street surface securely bonds precoated NEFSLABS and NEFMATS in place.

NEW CONVENIENT LENGTHS

Precoated plastic strips are now available in 25 and 50-foot lengths . . . and 3, 4, and 6-inch widths. These new lengths and the precoating feature make strip-type NEFSLABS the most modern and economical marking method.

Spraying our adhesive on the streets through a striping machine and then simply rolling these convenient precoated strips into place mean much faster installation. So, permanent-type NEFSLABS offer doubly fast application and more than double service for marking lanes and center lines especially.

Colorful **NEFSLABS** and **NEFMATS** literature is available

New Sales Territories are Open for Capable Representatives.

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Traffic Control

Traffic Control

In collecting from this Mark-Time meter, made by M. H. Rhodes, Inc., Hartford, Conn., a sealed empty container is exchanged for the full one.

The coins in the individual containers; counted by automatic machines made by the Sattley Co. of Detroit, Mich., permit the City of St. Louis to maintain separate receipt records for each meter.

10,000 Parking Meters Inspected Daily

By JOHN K. TRAVERS, *Superintendent*
Parking Meter Department
St. Louis, Mo.

PARKING meters are big business. In 1954 THE AMERICAN CITY counted 1,416,707 parking meters in operation in 3,292 municipalities with annual revenues of over $75 million. Since then the number and the revenues have considerably increased. Sixty per cent of the income is surplus over operating cost.

Because of the magnitude of the situation and the effect parking or lack of parking has on business, the administration of the parking meter program should be conducted in a businesslike manner and not in a haphazard fashion.

St. Louis, as all other cities, experienced a tremendous growth in automotive traffic after World War II. The need for new methods to apportion equitably the limited amount of available curb space was readily apparent. Parking meters provided an immediate answer and in 1951, 250 meters were installed on trial. We now have 10,000 "Mark-Time" meters on the street with annual revenue of $700,000. As in most other cities, public opinion at first was either undecided or unfavorable, but today both motorist and merchant are advocates of a well-planned meter program.

The Parking Meter Commission establishes general operational procedures and must approve all meter installations. The Parking Meter Department of the City of St. Louis is an independent part of the City Treasurer's Office and operational control is delegated to the Superintendent of Parking Meters. We have 45 employees made up of three supervisory personnel; 28 parking meter maintenance men; four men for installing, removing and tightening meter posts; two painters; four employees to count and record receipts; two employees for surveys; one secretary and one janitress. All are full-time employees.

10,000 Daily Check-ups

In St. Louis, we practice preventative maintenance. Every parking meter is checked every day. We have divided the city into five districts, each with its own crew and truck. Our problem is somewhat simplified by our having only one type of parking meter. It greatly reduces the inventory of spare parts needed and the quantity of parts our maintenance men must carry with them.

The daily check consists of testing the handle, listening to the timing device and general observation to determine any obvious trouble. On this daily routine, all meters with cars parked in violation are thoroughly checked. Any complaints received from the public or the police department are also immediately investigated and the meter tested.

Next in our maintenance program is a weekly check of each parking meter. The meters are removed from the housing and all mechanical functions are tested on the street. Worn parts are immediately replaced. This inspection is the same as the inspection made on receipt of a complaint.

Once a week, an inspector visits every section of the

city in the hours right after dawn and before the meters are operative. He looks for defective timing mechanisms. Two crews replace bent, loose or broken meter posts and make meter repairs.

A third element of our maintenance program schedules the repainting of all parking meter posts every two years; and replacing all operating mechanisms and removing, cleaning and repainting all meter housings on a five-year basis. This not only insures peak efficiency and no unsightly appearance on the street, but replacement cost can be budgeted over the five-year period with no large expenditure in any one year.

During the eight years that we have been in operation, complaints on nonfunctioning meters have consistently averaged less than one-half of one per cent. Our average day consists of not more than ten complaints—which would be one-tenth of one per cent.

Collecting

Collections from 10,000 parking meters present an entirely different problem from maintenance. To prevent duplication of effort, our parking meter collections are made by our district maintenance crew on their daily maintenance inspections.

Since our first installation we have used the sealed coin box system for safeguarding receipts. This system provides for replacing a full container with a sealed empty container. The full containers with seals intact are brought to our office, where they are removed and the receipts counted. In our office we maintain individual parking meter receipt records, as well as area- and city-wide records. Without the sealed coin box system these records could not be obtained. Satco Automatic counting machines are utilized because of their efficiency and accuracy. As previously stated, the individual and area records are used to establish our collection schedules, to give information for maintenance purposes, to indicate where police enforcement may be lax, and to assist in developing programs for off-street parking and traffic surveys. They have also indicated where existing time limits should be increased or further limited.

Records Help Business

There is still another field in which these records have proved useful. Since they reveal the heaviest concentration points in so far as parking in any given area is concerned, merchants have utilized the information for location of new stores. These records are expensive to compile but we feel that the information secured from them more than compensates for the cost.

In any parking meter operation whether large or small, personnel should be hired on a full-time basis. Delegating the responsibility of maintenance to the police department or employees with other duties tends to encourage hit-or-miss maintenance. It is easy to assume when the weather is inclement, that the parking meters are functioning properly. Postponing proper maintenance is the first step in destroying public confidence. Public relations are not confined to advertising programs or the front office. In this business the primary contact with the motorist who, after all, pays the bill, is the maintenance man. He should never be "too busy" to listen attentively to any suggestion, request or complaint and to take whatever action is required regarding the matter.

Proper maintenance is the key to a successful parking meter operation. Revenue from a well-planned installation will be sufficient to provide a proper staff and still show a large surplus.

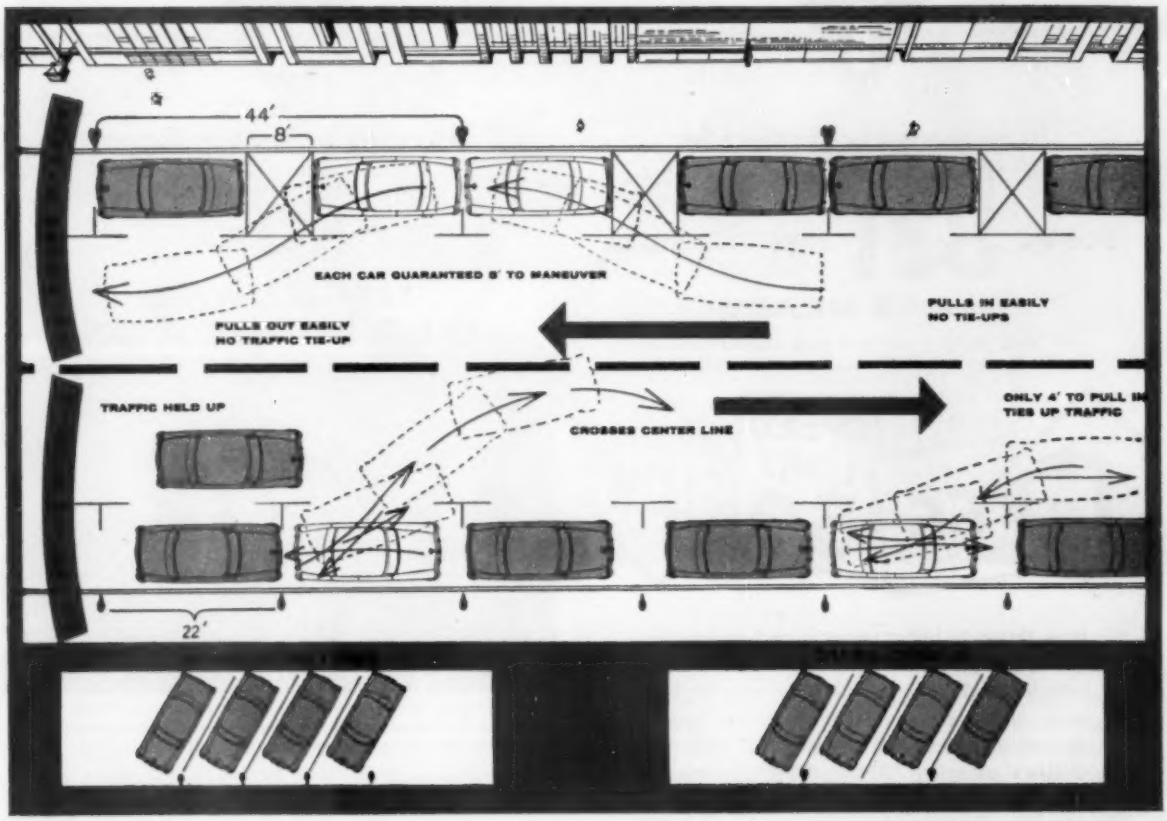
Street Marking In Green Bay, Wis.

THE City of Green Bay, Wis. has about 30 miles of streets which are center-lined with paint. Approximately 2 miles of streets are center-lined with plastic semipermanent marking material. Our paint markings last about three months. Our plastic marking material was applied on our busiest streets 3 years ago (1955) and is still in comparatively good shape.

LT. J. R. SLOAN
Police Department
Green Bay, Wis.

Nefslabs on two-lane Main Street bridge over the Fix River in Green Bay, Wis. After several years of traffic averaging 26,000 vehicles per 24 hours, none of the markers have loosened.

HOW TO MAKE THE MOST OF EXISTING PARKING SPACE



Only Dubl-Duals get the most out of existing parking space and reduce metering costs 27% in the bargain

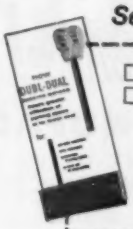
The drawing above shows clearly how Dubl-Dual Parking Meters insure eight full feet between cars while single meters often reduce space to only four feet. Note too how traffic flows more easily and safely when cars are assured adequate room to maneuver into and out of the parking spaces.

But greater utilization of parking space is only part of the Dubl-Dual story. Since Dubl-Duals are two separate meter mechanisms in a single case, initial cost is lower. And installation costs are reduced because only half as many meter stand installations are required. Dubl-Duals also reduce collection and inspection time . . . every other meter "stop" is eliminated.

There are lots of sound, proven reasons why your community should investigate the economy and efficiency of Dubl-Dual metering. Send the coupon for complete details in the new, booklet on Dubl-Dual Parking Meters. Dual Parking Meter Co., Subsidiary of Rockwell Manufacturing Co., Pittsburgh 8, Pa.

DUAL PARKING METERS
another fine product by
ROCKWELL

Send for this free booklet today



☐ Please send complete information on Dubl-Duals.
☐ Please have your representative call.

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GLASS BEADS

For high quality and low cost applications to Traffic Signs, Street Name Signs, License Plates

Now, thanks to better research and engineering, your signs can have the ultimate in long range reflectivity, plus day and night message legibility never before obtainable at any price. Applied at economical cost and "permanized" with Flex-O-Lite's amazing "STORMCOTE", protective covering agent, you get new highs in weather, water, dirt and wear resistance, plus *nearly 90% angularity!* Put the new Flex-O-Lite 831 Reflective Sign System to the test in your own shop. Details in our new bulletin. Write today.

Available in "extra-fine" grade for Street Name Signs and License Plates. Affords extra velvet-smooth finish for added dirt and wear resistance, and greater economy.

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Savings in Time • Money and Labor Insured*

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*The result of five years of research and development. Field tested for two years with the cooperation of highway and traffic engineers . . . your assurance of satisfaction.

LOOK AT THESE OUTSTANDING FEATURES

Marked resistance to high humidity • Flow freely through dispensing equipment • Store for unlimited periods without agglomerating Contains no waxes, oils or silicones • Offer perfect adhesion to any suitable traffic bead binder Eliminates necessity of daily cleaning of hoppers for additional savings in time and labor

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Extra large Type "H" Safety Spheres—for Guard Rails—Curbs—Pavement Messages—Bridge Abutments, etc.

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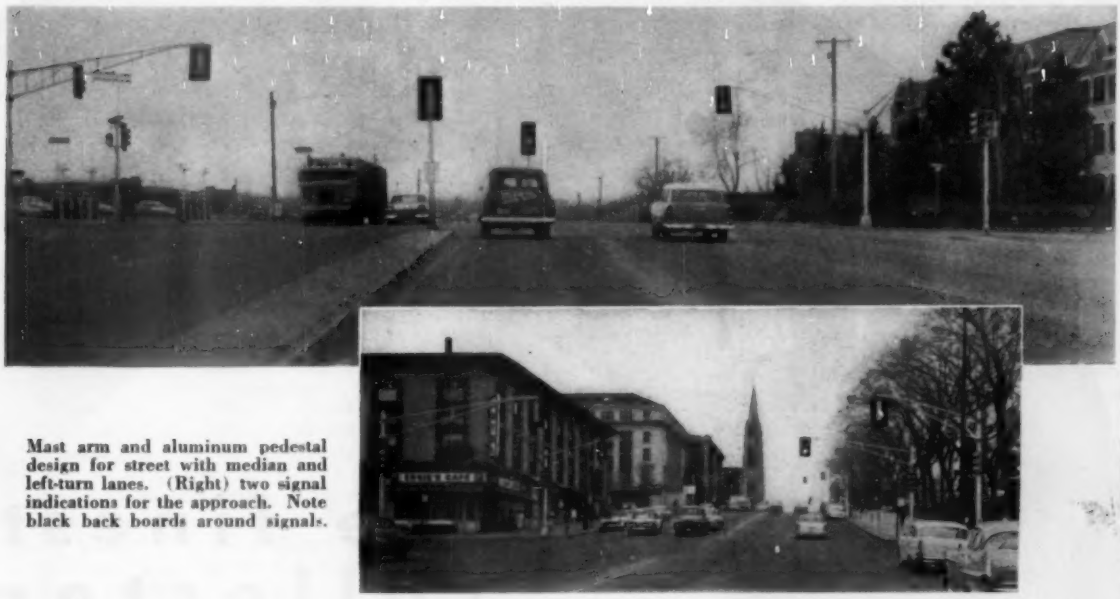

Mast arm and aluminum pedestal design for street with median and left-turn lanes. (Right) two signal indications for the approach. Note black back boards around signals.

Denver Remounts Traffic Signals for Visibility

ON many of its heavily traveled arterial streets, Denver, Colo. is rebuilding its obsolete pedestal-type signals to a new overhead mast arm design. The purpose of the change is accident reduction and more efficient traffic movement. The older pedestal signals in the sidewalk area were adequate for pedestrians but were "lost" to motorists due to high neon sign competition and utility pole interference.

The new signal designs are already demonstrating accident reduction—in one case, a year-BEFORE and a year-AFTER study indicates a 72% reduction.

The signal designs utilize aluminum bases, poles and mast arms as manufactured by Pfaff & Kendall Co., 84 Foundry St., Newark, N. J. After much consideration the tapered "rigid type" mast arm construction was selected, employing either 20-foot or 12-foot mast arms to place the signals as far out as possible over the moving traffic lanes. In most cases two mast arms are used for each main street approach with the arm on the right being the principal indication, and the one on the left serving as an auxiliary indication unit.

For the most part, we are using Electro-Matic semi-actuated or fully actuated controllers with pressure pad detection made by Automatic Signal Div., Eastern Industries Inc., Norwalk, Conn. The semi-actuated controllers are now interconnected through the use of synchrolizers, with further supervision and interconnection through radio being studied at this time. Pedestrian timers have also been placed at most locations with push buttons on the aluminum poles at all corners of the intersection.

The average cost for the rebuilding program is approximately $2,500 per intersection with around 125 intersections being involved.

Denver's motorists and pedestrians alike seem to be very happy with the modernization program and members of the Denver Traffic Engineering staff are elated over the accident-reduction accomplishments at former high accident-frequency intersections.

JOHN A. BRUCE
Traffic Engineer
Denver, Colo.

Need Better Public Transit

A NEW guide to urban transportation solutions has been completed by 160 government and university men and tested in six cities. It was developed by the National Committee on Urban Transportation composed of eight associations of public officials and the U. S. Bureau of Public Roads.

Designed for mayors, city managers, councilmen, public transportation heads, and state highway officials, *Better Transportation for Your City* includes methods of: organizing for the study; compiling traffic facts; defining the problem; developing the plan; finding the finances and carrying out the plan.

Procedure manuals will be published soon to aid technicians in making origin-and-destination studies, finding travel time, studying accidents and parking.

The manuals are published for the committee by Public Administration Service, 1313 East 60th St., Chicago 37, Ill. *Better Transportation for Your City* is $5. The 15 procedures manuals will vary in price from $1 to $2.50.

The finest collector of fines!

OVER 700 DUNCAN FINE-O-METER customers report approximately 80% of all overtime parking fines are deposited into **DUNCAN FINE-O-METER** boxes.

BY allowing motorists to make "on the spot" payment without embarrassment, ticket delinquencies of transients and tourists are greatly reduced.

INVESTIGATE DUNCAN'S complete **FINE-O-METER** system of fine collection using convenient ticket-envelopes printed to meet your city's requirements.

Write Today

DUNCAN PARKING METER CORP.
835 NORTH WOOD STREET, CHICAGO 22, ILLINOIS
FACTORIES: HARRISON, ARKANSAS AND MONTREAL, P.Q., CANADA
Manufacturers of fully automatic and manual parking meters.

Buffalo's Ramps Make Big Money

WHEN a group of downtown merchants joined forces with city officials, three modern municipal parking ramps became a reality in the heart of Buffalo's business district. Plans were also made for four open off-street parking facilities in various business neighborhoods, with a combined capacity of 620 cars at an estimated cost of $576,000.

The following table shows for the three completed ramps, the parking fees income and the number of cars parked, for the 1956-1957 year:

Ramp	Number of Cars Parked Daily (Average)	Yearly	Income
Eagle	954	291,398	$141,888
Mohawk	1233	401,878	184,146
Seneca	313	98,499	51,047

These ramps were financed by city bond issues and have been managed by the business group under the name Buffalo Civic Auto Ramps, Inc.

Earnings were $84,675 for the first full fiscal year ending June 30, 1957. Interest earned on the corporation's invested funds amounted to $14,094. The "profit" was paid to the Controller's Office August 30, 1957. This was in addition to $148,574, the amount by which the income of the three ramps exceeded expenses in the preliminary operating period ending June 30, 1956. The two payments to the city by the Buffalo Civic Auto Ramps, Inc. totaled $238,250.

Operating net income of the ramps after direct expenses provided a coverage 1.42 times the amount of the bond interest and amortization, which is $170,942 annually.

The cooperation received from the city's Parking Division, Common Council, the Mayor, the Controller, the Corporation Counsel, and the Commissioner of Public Works made possible the construction of the ramps. The success of their operation is due in large measure to the ramps' courteous employees and the supervisory management.

It Doesn't Cost Much To Cut Accidents Now

THE ultimate in traffic control—maximum physical separation of vehicles through improved highway design—may be achieved in the distant future. But tens of billions of dollars will be required to reach that goal.

Meanwhile bargain-hunting highway officials are buying right shoulder guidelines and reflectorized license plates. Both reduce head-on and rear-end collisions and the number of cars running off the road. Such accidents account for more than half of the nation's approximately 40,000 annual traffic fatalities.

These are workable ways of reducing accidents immediately. Last year, 22 states employed pavement edge markings, nine states issued reflectorized license plates or tags, and eight more are considering adoption of reflectorized plates in 1958. Also, 20 states expect to extend their use of right shoulder guidelines. There are more than 25,000 miles of such pavement markings now, according to the survey.

Connecticut, with the second lowest mileage death rate in the country and a recognized leader in safety work, is credited with the introduction of both devices —the new plates in 1948, guidelines in 1953.

Utah Proves the Case

The effect of right shoulder guidelines, which enable drivers to feel safe in keeping closer to the right, was dramatically illustrated in Utah. After the guidelines were painted, there was a gain of 15 inches between passing.

Certainly we should continue our expenditures for modern roadways with median islands or dividers, grade separations, and clover leafs. The federal Bureau of the Census figures show that in 1956, 17,000 municipalities with approximately two-thirds of the nation's population spent $1,186,000,000 for such capital improvements.

Every device of traffic engineering should be used to speed the flow on existing roadways. The average cost of equipping highways with shoulder guides is $150 a mile, and plates can be reflectorized for an additional two cents.

WILLIAM J. LARKIN
Cataphote Corp.
Toledo, Ohio

Shaves Out Traffic Lines

WITH more interstate highways every year and ever-increasing traffic on existing expressways, traffic arteries and main business streets, the painted traffic lines on some streets need to be shifted.

How to get rid of the old lines? To do just this, a traffic line shaver is now available for removing paint lines from streets, highways and airfields. The specially constructed cutters are on a rotary drum, cover a 6-inch path and operate on concrete and asphalt.

Powered by a 6-hp Wisconsin motor, the shaver weighs approximately 300 pounds and travels 10 feet a minute. Write Artex Welding & Fabricating Traffic Division, 824 N.W. 9th Ave., Fort Lauderdale, Fla.

How to get rid of the old lines? Not a traffic marker but a demarker and eraser—or as it is named, an Asbury Traffic Line Shaver—rubbing them out in Miami Beach, Fla.

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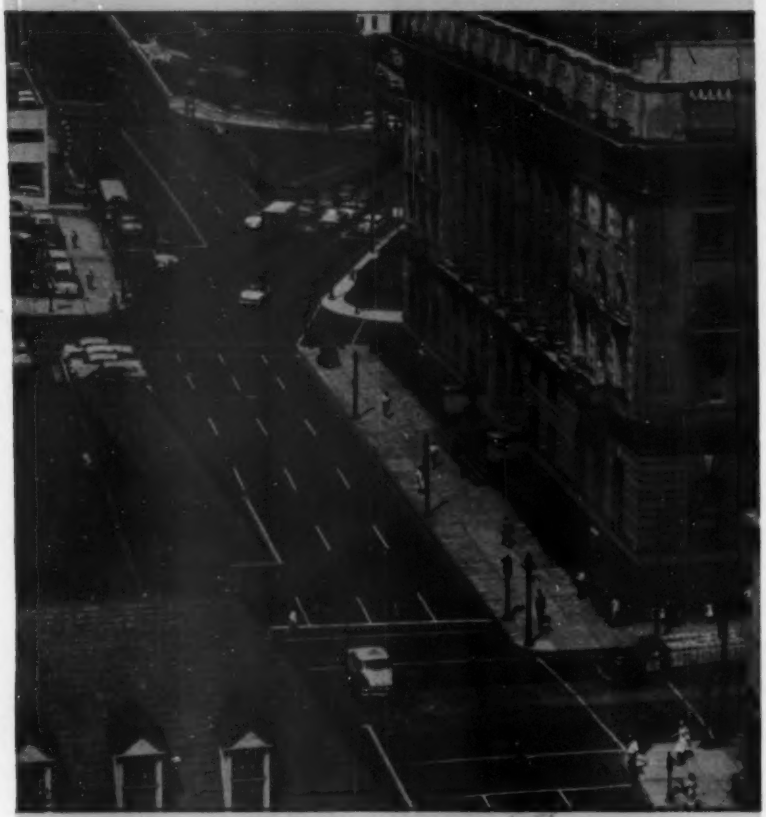

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Many People Will Move from Slums

(Continued from page 111)

to do so and rejected all offers of the Relocation staff to help him find better private housing.

Before the Housing Authority took possession of the property on which he was living, the man married a woman with seven children from a previous marriage. She and her children lived in the Booker Homes, and the wedding ceremony was performed in the Booker Homes community hall.

With 10 children and a wife to support, the man still refused the assistance of the Relocation staff and the offer of a Booker Homes apartment.

He moved his family into a four-room substandard house in a neighborhood far removed from Granite Mountain. The house had no utilities, but it was on a standard sized lot.

A Relocation officer visited the family in its new house and pointed out its disadvantages. She renewed her offer to help the family find a decent standard house.

After four months of persistent effort, by the Relocation officer, the man finally moved into a low-rent public housing apartment with four bedrooms, a living room, a kitchen and a bath. A school and a church of the family's faith were nearby. His rent was $31 a month.

The Authority found in that respect, residents of the Granite Mountain urban renewal area were similar to the residents of the Dunbar area: ***that, given the opportunity and some educational persuasion, they are willing to spend more money for better housing.***

Case II

In a shack on a lot in the Granite Mountain area the Housing Authority found a man living alone. In another shack on the same lot lived his son and the son's wife. The combined monthly income of the father and the son was $450.

The Authority paid the father $5,050 for his property. With the assistance of the Relocation staff, the father bought a two-family house with separate entrances in a very good neighborhood for $12,250, well within their financial means.

Case III

In another instance, the Authority paid $1,700 for the property to a family of two with an income of $266

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a month. The shack in which the

The SIGN
OF A GOOD COMMUNITY

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It's a sign of wise purchasing when a community standardizes on Miro-Flex quality embossed signs! Visitors and citizenry alike will appreciate the uniformity and the knowledge of "where they are" and "what you expect them to do."

Miro-Flex signs look better, are more readable and last longer than flat-surfaced signs, and they are of the highest quality because they are embossed on zinc-coated, Bonderized steel, finished with high-grade enamels, baked in thermostatically controlled ovens.

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a month. The shack in which the couple lived had no utilities and its construction had never been completed.

After consultation with the Relocation officers, the family purchased a small brick house in a rural area near Little Rock for $4,000. Five other families from Granite Mountain also purchased homes in the same area.

The experience gained from the Authority's four slum clearance and redevelopment projects, including Granite Mountain, indicates: ***that a successful relocation program requires intensive personal contact with the families to be moved as a prerequisite to financial and relocation assistance.***

The record also indicates: ***that some families, no matter how much assistance they receive, are not prepared to move into standard housing, that they must become accustomed in gradual stages to an acceptable environment.***

Some Conclusions

It is apparent that, if the families to be moved understand the need for good housing and have a desire for bettering their homes but have not the financial capabilities, means are available through public and private channels to help them.

If, on the other hand, a family has neither the understanding nor the desire, and even if the means are available, the family will improve its living conditions only slightly, if at all.

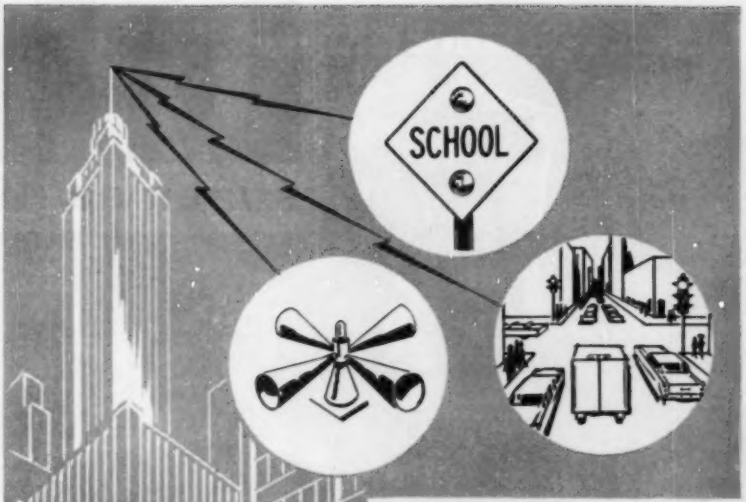
For some families, the step from substandard housing to standard housing is too great, and an intermediate step must be provided.

Better housing, we hold, is the prime reason for slum clearance and urban renewal. Unless housing is improved, the intent of urban renewal is not accomplished.

Helmets for Motorcycle Policemen

FOOTBALL-like helmets weighing 20 ounces are standard equipment for New York City motorcycle policemen. Selected after four-month field test, the light blue helmet has a laminated shell of fiber glass, with a plastic-and-foam-lining. The criterion was the protection afforded the wearer and the headgear's durability and comfort.

The approved helmet is manufactured by McHal Enterprises, 725 North Prairie Ave., Hawthorne, Calif.



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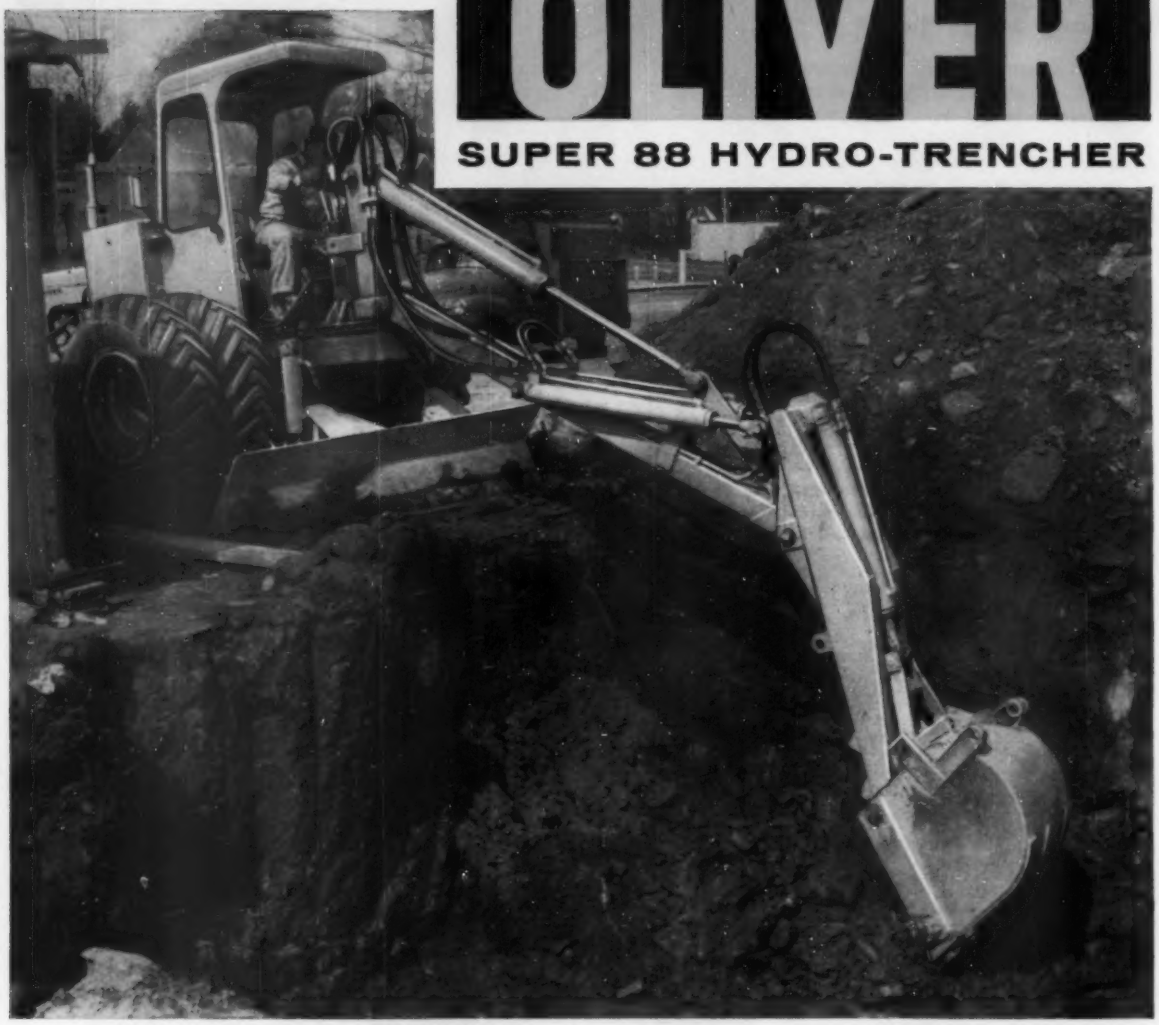
OLIVER

SUPER 88 HYDRO-TRENCHER



"We bought the Oliver after watching it perform for others"

"And there was only satisfaction in what we saw," says this owner of a Hydro-Trencher in Yonkers, N.Y.

And here's what some other owners have told us:

★ "The Hydro-Trencher does 25% more work than any comparable rig we have ever seen."

★ "It would take three men 6 or 8 hours to do what our Hydro-Trencher does in 30 minutes."

★ "Our Oliver has performed so well that 3 others in our area have bought Super 88 Hydro-Trenchers."

★ "In light or heavy work it can't be beat."

★ "After 2 years, maintenance has been negligible."

After all, when you're buying a back hoe, you're buying *performance*...the ability to dig faster, easier, at lower cost. So why not see for yourself?

Your Oliver distributor will gladly refer you to some owners of the Super 88 Hydro-Trencher in your area. Or ask for a demonstration. Let us prove that the Hydro-Trencher can outwork them all.

Oliver Super 88 Hydro-Trencher—a versatile rig for trenching and excavating; ½-yd. hoe bucket digs to 12′ depth, loads to 12′ height. Digs through hardest soils, even frozen ground. Highly mobile with six travel speeds from 2 to 16 m.p.h. Gasoline or diesel engine.

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Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

Proposed Water And Sewage Construction

PART II

MASSACHUSETTS

The Massachusetts Department of Public Health has knowledge of 12 agencies planning water improvement programs. These are as follows:

Agency	Population Served	Type of Improvement
Town of Amherst	8,204	Installation of wells and transmission main
City of Attleboro	24,870	Installation of wells
Barnstable Water Company		Installation of wells
Town of Andover	14,535	Installation of well and diversion works
Edgartown Water Company	1,518	Installation of wells, elevation tanks and mains
Lynnfield Center Water Dist.		Installation of wells
Town of Holbrook	6,286	Installation of wells and mains
Town of Braintree	28,098	Additions to treatment plant and new mains
Town of Norwell	4,127	Installation of well and new mains.
Town of Reading	16,440	Installation of well and pumping station
Swansea Water District	9,043	Installation of well, pumping station and mains
Town of Walpole	11,293	Installation of well and pumping station

With respect to sewage treatment, Worthen H. Taylor, acting chief sanitary engineer for the Division of Sanitation reports the Metropolitan District Commission has plans for and are working on two large projects. One is the $2,500,000 Randolph Intercepting Sewer to serve Randolph, Holbrook and part of Braintree—a combined population of 25,000. The second project, the Deer Island Sewage Treatment Plant, outfall sewer, tunnels and headworks will serve some 1,500,000 persons and will cost about $65,000,000. Six other projects are planned as follows:

Municipality	1955 Population	Project	Cost	Remarks
Easthampton	11,698	Sewage Treatment plant	$ 515,000	Grant P. L. 660
Longmeadow	8,482	Sewage Treatment plant	615,000	Grant P. L. 660
Northampton	26,271	Sewage Treatment plant	900,000	Grant P. L. 660
Milford	15,622	Additions to general treatment plant	350,000	Grant P. L. 660
Marshfield	4,930	Sewage Treatment plant	110,000	Grant P. L. 660
Ipswich	7,941	Sewerage system and sewage treatment plant	748,000	Appl. for Grant P. L. 660

OHIO

Although numerous sewerage projects are planned for construction in Ohio, F. H. Waring, chief sanitary engineer, State Department of Health, states that it is the department's opinion that water supply and pollution abatement problems in the state are not easing at the present time. Many plants built under WPA and PWA in the late 1930's and early 1940's are now being renovated or expanded. Very few plants were constructed between 1942 and 1952, contributing materially to the present backlog.

The department does feel that the federal program of grants-in-aid to municipalities undertaking sewage treatment projects has helped in Ohio and has stepped up construction of many plants.

Following is a list of planned water and sewerage projects:

Water

Municipality	Population Served	Type of Improvement	Estimated Cost	Present Status
Alliance	30,000	Alteration to water plant and distribution system	$472,000	Detail plans
Ashland	16,000	Additional filters, high service pump and distribution system	394,000	Detail plans
Belmont	1,000	New water supply and distribution system	100,000	Detail plans
Canton	123,000	Additional wells iron removal plants, and distribution system	7,257,000	General plans
Chesterhill	1,000	New pumps, standpipe and distribution system	97,000	Detail plans
Cincinnati	600,000	Low service pumping station, intake and tunnel	3,500,000	Detail plans
Fostoria	16,000	Addition and alterations existing water treatment plant	947,000	Detail plans
Girard	12,700	New water supply facilities	495,000	Detail plans
Marion	38,000	Addition to existing water softening plant	725,000	Detail plans
Wilson	2,000	Water treatment plant and distribution system	193,000	Detail plans

Sewerage

Municipality	Population Served	Type of Improvement	Estimated Cost	Present Status
Archbold	1,900	S.T.P. and sewers	1,080,000	Detail plans in preparation
Barberton	35,000	S.T.P. improvements	1,300,000	General plans
Bucyrus	12,000	Improvement to S. T. P.	597,000	General plans
Chillicothe	26,300	Improvement to S. T. P.	426,000	General plans
Cleveland	500,000	Additional vacuum filter and sludge incinerator southerly S. T. P.	2,240,000	Detail plans
Deshler	1,800	S.T.P. and interceptor sewers	288,000	Detail plans
Elyria	36,500	Addition and improvements to S. T.P.	2,030,000	General plans
		Sanitary sewerage improvement	1,000,000	General plans
Euclid	60,000	Sludge disposal facilities for new S. T. P.	2,136,000	Detail plans
Gallipolis	8,400	S.T.P. and interceptor sewers	1,150,000	Detail plans
Lakewood	67,000	S.T.P. addition and improvements	2,500,000	General plans
Napoleon	5,600	S.T.P. and interceptor sewers	761,000	Detail plans
Newark	39,000	S.T.P. addition	1,000,000	General plans
Niles	19,000	S.T.P. and interceptor sewers	3,035,000	Detail plans
Rocky River	38,000	S.T.P. addition	3,600,000	General plans in preparation
Springfield	87,000	S.T.P. improvement and additions	2,250,000	General plans
Struthers	15,000	S.T.P. and interceptor sewers	1,336,000	General plans
Toronto	8,200	S.T.P. and interceptor sewers	700,000	General plans
Versailles	1,900	S.T.P. expansion	95,000	General plans
Warren	60,000	S.T.P. and interceptor sewers	7,920,000	Detail plans
Washington C.H.	11,400	S.T.P. addition	515,000	Detail plans
Wellston	6,200	S.T.P. addition	191,000	Detail plans
Wilson	2,000	Sanitary sewers and S.T.P.	126,000	Detail plans
Xenia	16,000	S.T.P. addition	415,000	Detail plans
Youngstown	183,000	S.T.P.	8,365,000	Detail plans

S.T.P=sewage treatment plant.

(Continued on next page)

An "American City" staff study of water and sewage works activities in the planning stage.

new technique

CUTS COSTS IN RELIGHTING

SCHENECTADY UTILIZES OLD CONCRETE POLES BY ADDING NEW P & K ALUMINUM CONVERSION UNIT

Problem: how to relight at a minimum of cost, both in units and erection. Solved by P & K engineers! Schenectady, New York utilized their old standing concrete poles by fastening tapered aluminum shafts with graceful six-foot arms and incandescent luminaires. Thus, in one easy-to-install unit they provided the lighting intensity they wanted at a minimum cost. As for maintenance problems, there are none. P & K all-aluminum standards never need painting or other costly maintenance. They maintain their good looks and offer unsurpassed resistance to weather. For your next lighting installation, consult P & K first. For more help, send for Catalogs ALS and L-2 describing standards and lighting units for all applications.

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Of course, since P & K offers a wide range of styles in standards, both davit and the conventional type, Schenectady in effect customized their installation with modified standard parts. It's easy to modernize existing obsolete street lighting installations the P & K way.

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MISSISSIPPI

Activity in the field of sewage treatment in Mississippi is greater now than anytime in the past, according to Robert A. Gerber, assistant engineer, Mississippi State Board of Health. Although the federal grant program has assisted in this work, much credit goes to the introduction of sewage lagoons in the state, for this has brought sewage treatment within the reach of most municipalities.

Many sewage projects are now in the planning stage, as shown below, but no water projects of any size are now pending.

City	Population Served	Improvement	Estimated Construction cost	Present status
Clarksdale	40,000	Interceptor and sewage treatment plant (H.R. filter)	$1,200,000	Under design
Meridian	80,000	Interceptors and sewage treatment plant (Act. sludge)	4,305,000	Under design
Ackerman	2,250	Collection system and treatment plant (Std. rate filter)	168,750	Awaiting bids
Newton	3,600	Outfalls and lagoons	186,000	Awaiting bids
Forest	10,000	Outfalls and lagoons	230,000	Under design
Biloxi	50,000	Collection system and treatment plant (H. R. filters)	3,000,000	Under design
Starkville	10,000	Lagoon	160,000	Awaiting bids
West point	10,000	Lagoon		Under design

RHODE ISLAND

Walter J. Shea, chief, Division of Sanitary Engineering, Rhode Island Department of Health, reports that work under consideration by the following cities represents the more important sewage treatment and water supply projects in the planning stage:

Sewage Works in Planning Stage

Municipality	Population Served	Type of Improvement	Estimated Cost	Present Status
Town of Westerly	7,200	New sewage treatment plant	$300,000	In design
State of Rhode Island, Exeter School	1,120	New sewage treatment plant	264,000	Ready for construction
City of Newport	37,000	Two pumping stations and interceptors	227,300	Some work ready to be contracted

Water Works in Planning Stage

Municipality	Population Served	Type of Improvement	Estimated Cost	Present Status
City of Woonsocket	46,000	Treatment and added sources	$2,800,000	Under construction, $300,000. Remainder in planning stage
City of Providence	295,000	Distribution storage	350,000	Plans and specifications ready for bids
Wakefield Water Company	9,300	Added source	25,000	Plans and specifications ready for bid
City of Newport	46,000	Filter plant and other system improvements	322,000	Plans and specifications to be prepared

MICHIGAN

Michigan reports that many of the state's several hundred municipalities have projects which they either propose or would like to undertake, and are somewhere along in the planning stage. Following is a list of proposed water improvement projects, many of which the engineering report has already been completed:

Area	Type of Project	Population	Estimated Cost
Flint & Genesee Counties	Filtration Facilities, intake in Lake Huron, pumping stations, pipeline, feeder mains—engineering report already completed	250,000	$80,400,000
Kent-Ottawa Water Auth. (to serve Zeeland, Hudsonville, Grandville, Georgetown Twp., Wyoming Twp., Paris Twp., E. Grand Rapids, Grand Rapids).	Intake in Lake Mich., pumping stations, filtration plant pipeline—engineering report already completed	250,000	25,000,000
Ludington	Filtration plant—Engineering report already completed.	10,000	1,000,000
Cadillac	Filtration plant, feeder mains—engineering report already completed	10,000	1,500,000
Traverse City	Filtration plant, intake in E. Bay, feeder mains—engineering report already completed	19,000	2,500,000
Oakland-Macomb Counties	Intake in Lake Huron, pipeline, storage, filtration plant—engineering report already completed	1,260,000 (estimate as of 1970) 2,600,000 (for the period of design)	107,000,000
Wayne County	Intake in Detroit River, filtration plant, storage, pumping facilities feeder mains—engineering report already completed. engineering plans now being completed	800,000	50,000,000
Bay City and County	Filtration plant, expansion, transmission mains, storage—engineering report already completed	136,000	7,000,000
Port Huron	Filtration plant—engineering report already completed	38,000	3,000,000
Coldwater	Water softening plant. Engineering plans completed	10,500	700,000
Gladstone	Filtration plant, feeder mains, meters—engineering report already completed	4,700	550,000
Sault St. Marie	Filtration plant—engineering report already completed	10,500	300,000
Southwest Berrien County (to serve New Buffalo, Grand Beach, Michiana, Chickaming Twp., Union Pier, Lakeside).	Intake in Lake Michigan, filtration plant, transmission lines —engineering report already completed	15,000	2,500,000
Huron River (Ann Arbor, Ypsilanti, Ypsilanti Twp., Bellevilla, Van Buren Twp., Huron Twp., Flat Rock)	Supplemental water supplies and sewage collection and disposal for entire area	301,000 (as of 1980)	23,000,000
Munising	Filtration plant	4,200	200,000
Harbor	Filtration plant	942	100,000
L'Anse	Filtration plant	2,400	150,000
Hillsdale	Additional ground water supply and softening	7,500	700,000
Owosso	Transmission and storage	19,380	300,000
Manistique	Filtration plant	4,980	200,000
Alma	Wells, transmission mains, storage, iron removal softening	8,500	700,000
Macinaw City	Wells, feeder mains, engineering report already completed	1,000	150,000
Clay Twp., St. Clair County	Feeder mains—engineering report already completed	1, 000	150,000
Farmington Twp., Oakland County	Distribution system, storage, Pumping facilities—engineering report already completed	3,000	?2,500,000
Oscoda	Wells, storage, distribution—Engineering report already completed	3,000	314,000
Blackman, Summit, and Leoni, Jackson County	Wells, storage, distribution system—Engineering report already completed	37 000	5,700,000
Monroe Twp., Monroe County	Intake in Lake Erie, filtration plant distribution system—engineering report already completed	13 000 (as of 1985)	1,980 000
Roscommon Twp., Roscommon County	Wells, distribution Storage—engineering report already completed	5,000	200,000
Benton Twp. Berrien County	Source of supply—Storage, distribution system—detailed engineering plans are completed	10,000	?2,500,000
Delhi Twp., Ingham County	Wells, storage, distribution system—engineering plans completed	9,000	670,00

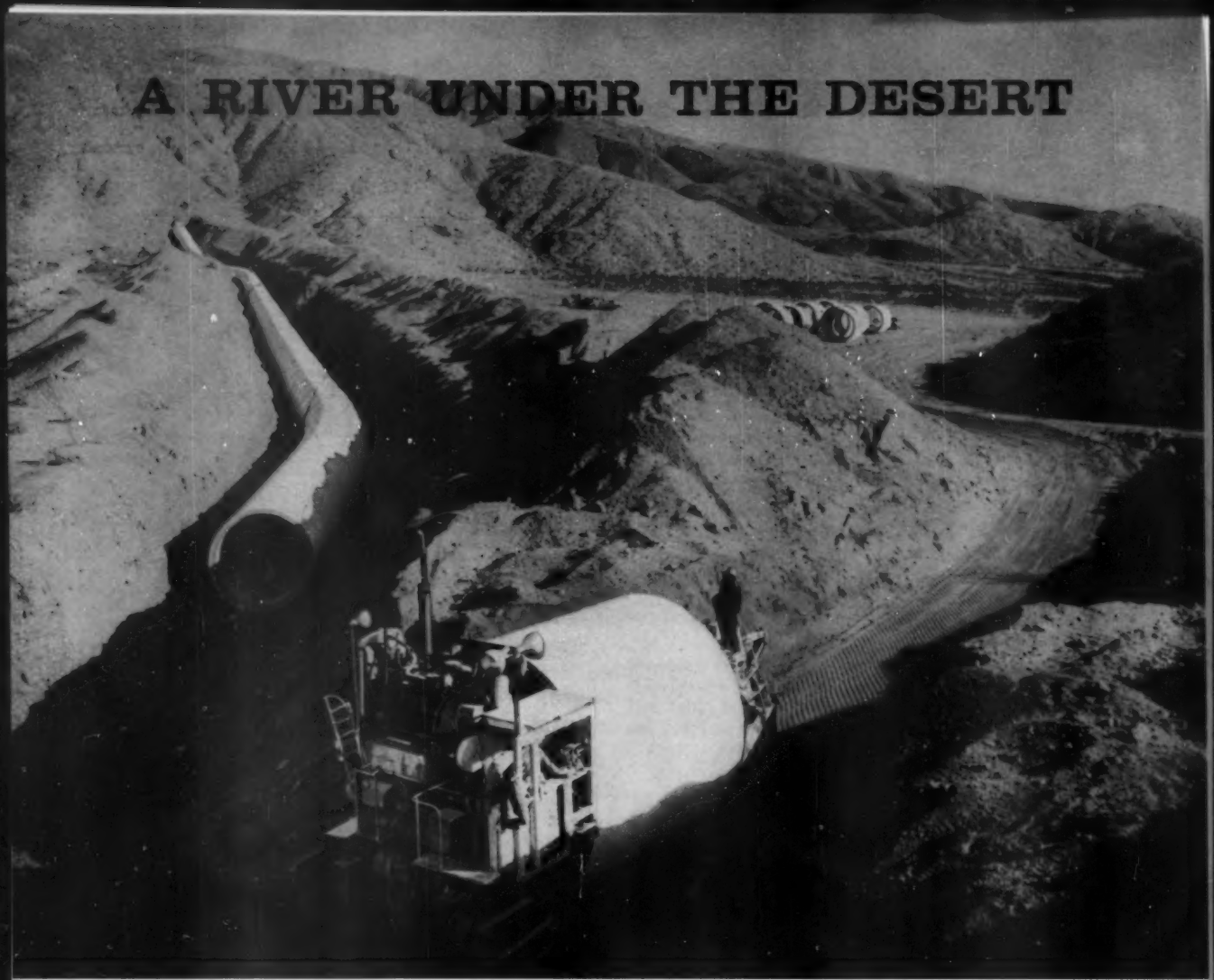
Numerous sewage projects are also being considered, many of them consisting of major trunk sewers. The following list includes some of the more outstanding projects:

Area	Population	Estimated Cost	Stage
Genesee County (Flint) sewers and sewage treatment	470,000	13,000,000	Planning
Warren City, sewers and sewage treatment	100,000	25,000,00	Under Const. (40%)
Oakland County, Twelve Towns, relief sewers	400 000	?50,000,000	Planning
Oakland County, Farming and Evergreen inceptor sewers	300,000	10,000,000	Final Planning
Detroit relief sewers and sewage treatment	2,000,000	53,000,000	Planning
Wayne County sewers (new and relief)	1,000,000	35,000,000	Planning
Macomb County sewers	300,000	40,000 000	Study
Ann Arbor sewers	300,000	4,500,000	Planning
Lansing area—sewers and sewage treatment	300 000	10,000,000	Planning
	5,170,000	240,500,000	

NORTH CAROLINA

J. M. Jarrett, director, Sanitary Engineering Division, North Carolina State Board of Health, states it is difficult to say whether water supply and pollution abatement problems are becoming better in the state. Although many municipalities and industries have cooperated, some have not. Additional industries moving into the state also present pollution problems. These facts plus increased operational and maintenance prob-

A RIVER UNDER THE DESERT



American Pipe and Construction Co. is engaged in the manufacture and installation of 63,000 ft. of reinforced concrete pipe for 47 inverted siphons of the Colorado River Aqueduct. The siphons, widely spaced along a 183-mile segment of the aqueduct, are part of the program of the Metropolitan Water District of Southern California to bring the gigantic water supply line to full planned delivery capacity of over a billion gallons of water per day.

American's solutions to the remote location and magnitude of the project include the establishment of two on-the-project manufacturing plants. Hauling of 13 ft. 6 in. diameter 68-ton sections of pipe is being accomplished with specially designed 99 ft. trailer-rigs. Approximately 180 miles of access roads are to be constructed before the job is completed in December, 1958. American designed and built the machine shown above to meet special installation problems posed by trenches 125 ft. wide and 50 ft. deep, with slopes up to 50%. This unique "Pipe-mobile" actually carries and installs the pipe.

Today, American Pipe and Construction Co. is more than ever capable of handling problems involved in long-distance transmission of large volumes of water. Fifty years of experience and extensive production facilities are available to help solve any water supply or transmission problem.

American
PIPE AND CONSTRUCTION CO.

Los Angeles: 4635 Firestone Blvd., South Gate, Calif.
LOrain 4-2511
Hayward: P.O. Box 630—JEfferson 7-2072
San Diego: P.O. Box 13—CYpress 6-6166
Phoenix: 2025 South 7th St.—ALpine 2-1413
Portland: 518 N.E. Columbia Blvd.—BUtler 5-2531

Project plants, such as this one located near Desert Hot Springs, California, incorporate all essential manufacturing operations of permanent plants and bring greater economy and coordination to such large projects.

CONCRETE PIPE FOR MAIN WATER SUPPLY LINES, STORM AND SANITARY SEWERS, SUBAQUEOUS LINES

lems make water supply and pollution abatement problems more difficult.

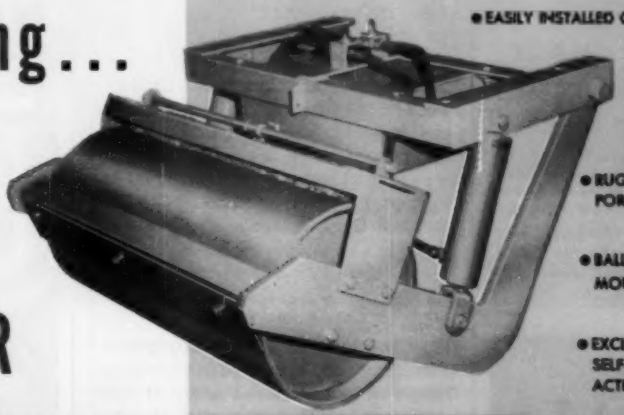
Planned projects in North Carolina are as follows:

City	Population Served	Water Approximate Cost	Type of Project	Present Status
Warrenton	1,200	$163,000	Intake dam, filter plant, pump station	Final plans submitted for approval
Pine Level	650	200,000	Deep well, iron removal plant, elevated tank, distribution system	Plans approved and bids received
Waynesville	5,300	—	Filtration plant addition, 2.0 mgd Filtration plant	Plans approved and bids received
Statesville	16,900	200,000	Filtration plant addition, 1.5 mgd	Plans approved and bids received
North Asheboro-Central Falls Sanitary District	3,030	400,000	Elevated tank, larger mains and extensions	Final plans being prepared

Municipality	Population Served	Sewerage Estimated Cost	Present Status
Aberkie	3,600	$301,040	New sewage treatment plant—no grant—preliminary stage.
Asheboro	8,500	1,917,176	New sewage treatment plant, outfall lines —no grant— final plans being prepared.
Burlington	26,000	2,056,650	New sewage treatment plant, outfall lines —no grant— final plant almost complete. City will complete without grant
China Grove	1,600	200,065	New sewage treatment plant, outfall line.. 30% grant approved. Final plans for project being completed.
Claremont	700	206,498	New sewage treatment plant, outfall line —no grant— final plans being prepared for completion of project.
Concord	17,000	2,182,510	New sewage treatment plant, outfall line —no grant—city going ahead with final plans.
Davidson	2,500	149,500	Renovation and additions and outfall lines. No grant—without grant construction will be held up for some time.
Forest City	5,000	677,000	New sewage treatment plant, outfall line. 30% grant approved. Final plans being prepared.
Granite Quarry	600	267,000	New sewage treatment plant and outfall line. No grant—without grant construction will be held up for some time.
Greensboro	70,000	4,300,000	New sewage treatment plant—no grant—final plans almost completed. City plans to go ahead with construction.
Hamlet	5,000	254,000	New sewage treatment plant and outfall line. No grant—without grant construction will be held up for some time.
High Point	40,000	1,118,100	Renovation and additions to both east and west plants. Grant $250,000 approved. Final plans approved and construction ready to begin
Huntersville	920	176,600	New sewage treatment plant and outfall line. No grant—without grant construction will be held up for some time.
Mooresville	7,200	955,990	New sewage treatment plant and outfall line. No grant—town going ahead with final plans for construction
Mount Airy	7,500	1,334,000	New sewage treatment plant, intercepting sewers and outfall line. $250,000 grant approved. Final plans being prepared—construction probably slow.
North Asheboro-Central Falls Sanitary District	3,030	537,400	New sewerage system and sewage treatment plant. No grant—final plans being completed. Work on project will start in near future.
Pinetops	1,100	135,504	New sewage treatment plant and outfall line. 30% grant allowed. Final plans being prepared for project.
Richlands	900	110,000	New sewage treatment plant and outfall line. 30% grant approved. Final plans being prepared.
Southern Pines	4,500	100,000	Additions to sewage treatment plant. No grant—final plans being prepared.
Star	700	77,000	New sewage treatment plant and additions to old plant. 30% grant approved. Final plans being prepared.
Tarboro	8,200	618,000	New sewage treatment plant and outfall line. 30% grant approved. Final plans being prepared.
Winston-Salem	87,900	1,264,556	Interceptor sewers, outfall line, etc. $250,000 grant approved. Construction already started.

EDITOR'S NOTE: Projects planned in other states will be featured in the July issue of THE AMERICAN CITY.

Announcing... the MARTIN PATCHER

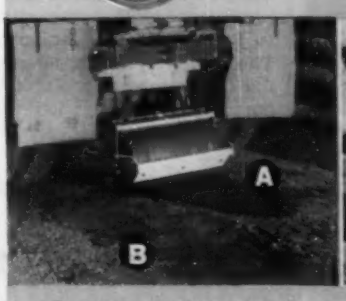


- EASILY INSTALLED ON ANY DUMP TRUCK
- ONE MAN OPERATION — SAVES TIME, LABOR, MONEY
- RUGGED CONSTRUCTION FOR YEARS OF OPERATION
- BALL BEARING MOUNTED ROLLER
- EXCLUSIVE WET, SELF-CLEANING ACTION PREVENTS STICKING

FOR A SMOOTH, PERMANENT PATCH!

Here's the answer to faster, less expensive, more permanent road repairs! The Martin Patcher produces a smooth patch that stays put by using controlled compaction maintained by hydraulic pressure against the weight of the truck. Designed and built by men who know your road maintenance problems. For complete information write to Martin Company, 620 Andrews Avenue, Kewanee, Illinois. Dealerships open!

MARTIN COMPANY, Kewanee, Illinois



Compare smooth patch "A" above with rough, loose, hand-tamped patch "B".

Patcher is easily drawn up under truck dump box when traveling between jobs.

Wylie
ASPHALT EQUIPMENT

WYLIE HAS THE UNIT TO DO ANY JOB!

What's your asphalt paving problem? Investigate the three machines shown below. You'll probably find a piece of Wylie Asphalt Equipment that's just right for your needs.

ROADMASTER

Model "1520" Asphalt Plant. Produces 15-20 tons of asphalt per hour. Here's a complete self-contained plant that's so mobile you can tow it to any jobsite and set up to operate in minutes.

PATCHMOBILE

Model "PM-430" Portable Hot-Asphalt Plant. More compact, greater capacity, lower aggregate charging height. Just the machine for hot patches or small contract jobs.

HEAT-A-MIX

Model 30-R Tailgate Asphalt Mixer. Mounts quickly and easily on truck tailgate. Here's the machine you want for making stockpile material as workable as fresh hot-plant mix.

Wylie Asphalt Equipment

Send for complete information

WYLIE MANUFACTURING CO., INC.
P. O. Box 7086 • Oklahoma City 12, Okla.

Air Pollution Control Notes

AIR ZONING is the tool that Dr. Francois N. Frenkiel, Johns Hopkins University Applied Physics Laboratory physicist, urges that municipalities use to combat air pollution. The zoning of air above communities will be difficult, Dr. Frenkiel says, involving a knowledge of possible sources of pollution, local, geographic and weather conditions, and chemical changes of pollutants in the atmosphere. He set forth his views in the annual report issued by the Smithsonian Institute, Washington, D. C.

Air zoning, or at least a comprehensive understanding of air use, looks like the constructive result of a heated argument over a new incinerator site on New York City's suburban Long Island. Local residents have angrily claimed that the incinerator will turn the Hempstead Harbor area into a small-scale Los Angeles basin, complete with smog, and have hinted darkly at the development of cancer, rats overunning the area, and many other unhappy difficulties. North Hempstead town officials have retained Professor William T. Ingram, New York University, to make a study of the problem. A meteorological analysis of the harbor area will be an important part of his report.

* * *

FLORIDA should be able to guarantee cleaner air along with its sunshine in the future. The new Florida Air Pollution Control Commission has started work by announcing a 16-page policy statement. To get a copy, send your request to Dr. Thomas H. Lipscomb, Commission Chairman, Florida State Board of Health, P. O. Box 210, Jacksonville 1, Fla.

* * *

OREGON'S AIR Pollution Authority is snuffing out the fires in five burning dumps in the Portland area. It has recommended that the city change to the use of the sanitary landfill. The authority is considering adopting regulations to prohibit the open burning of refuse wherever public nuisance is created.

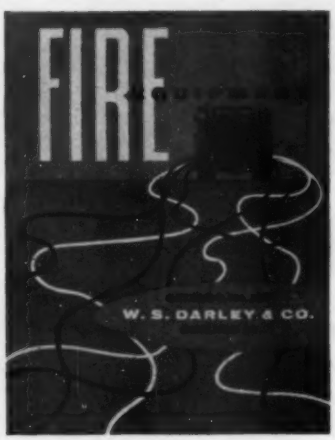
* * *

REGIONAL research of air pollution problems is in progress by the four *California counties* of *Los Angeles, Riverside, Orange,* and *San Bernardino.* They have formed the Regional Air Pollution Cooperative Committee to exchange air pollution information and seek standardization of smog testing methods.

The "SALUTE" ad reproduced on the opposite page is one of a Byron Jackson series scheduled in newspapers throughout the United States.

IMPORTANT: A full color wall size reprint (20" x 17") of this original painting by Herbert Fillmore is available without obligation to all persons concerned with water planning and supply. Write to W. S. Thomas, Byron Jackson Pumps, Inc., Box 70B, Lawrenceburg, Indiana or ask your nearby BJ Pump office.

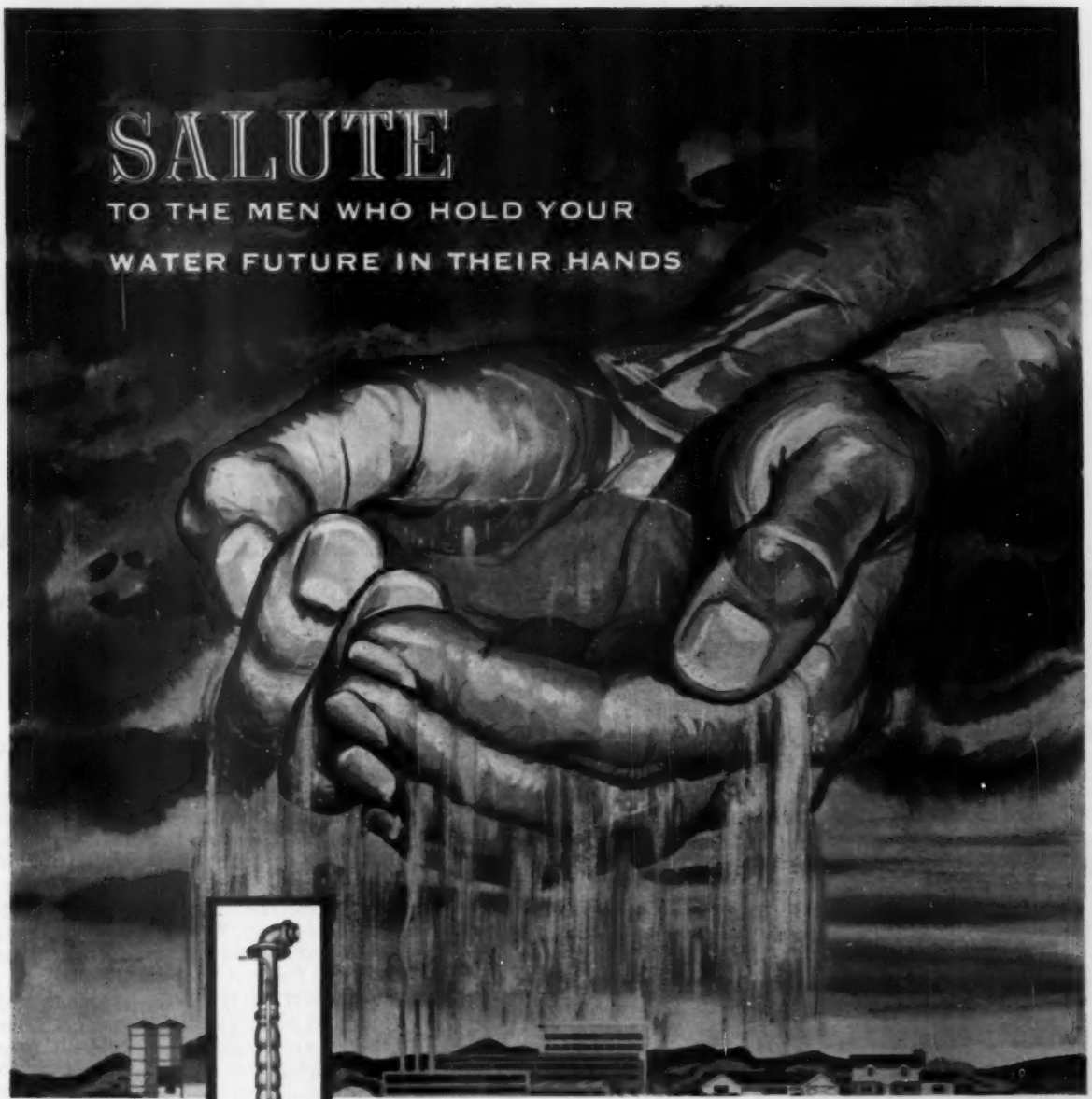
NEW CATALOG!



WRITE TODAY FOR 100-PAGE FIRE EQUIPMENT CATALOG

SPECIFY YOUR TITLE ON YOUR REQUEST

W. S. DARLEY & CO.
CHICAGO 12



The BJ Submersible shown here combines motor and pump in one powerful package that quietly works out of sight and sound. It is one of the modern answers to water supply pumping.

AT THE TURN of a tap... the indispensable fluid called water flows to keep our homes and community healthy and clean... our farms and industry prosperous and productive.

But today's life-giving water is not the instant servant it seems. Your local officials and water department—and the consulting engineers and pump dealers who work with them—have planned and built years in advance to put this water "on tap." *These men hold our water future in their hands.* Help and support them in this vital work.

BYRON JACKSON PUMPS

A Subsidiary of Borg-Warner Corporation · P.O. Box 70, Lawrenceburg, Indiana

The Work Bull 1001 as Pick-up Sweeper has 63" Palmyra rotary broom, wire steel gutter brush, and sprinkler system.

Stretch Dollars – Save Manpower with equipment that does more . . .

WORK BULL 1001

WORKS AS A LOADER ONE MINUTE . . . A SWEEPER THE NEXT

GET MORE EFFICIENCY OUT OF ONE MACHINE The Work Bull 1001 solves the "sticky budget" problem for all departments that need to save on equipment costs as well as manpower. This versatile 60.3 h. p. machine can be changed from a 7/8 cu. yard Tractor Loader to a hydraulically controlled Pick-up Street Sweeper in a matter of minutes. It doesn't require another unit to follow it around to pick up the debris, either, because this picks up its own and dumps it right into a truck.

The Work Bull 1001 can also be converted into a Backhoe (with its own backfill blade), Fork Lift, Angle Dozer, Crane, Rotary Broom, and Scarifier – right on the job if necessary. And each performs its task so well that you will think it is intended for just that one purpose.

INSTANT REVERSING WITHOUT SHIFTING To change directions of travel on the Work Bull 1001 simply switch your foot from the forward accelerator pedal to the reverse accelerator pedal. It responds instantly without any shifting of gears or levers. This, plus torque converter, power steering, five-speed transmission in either direction lets you work circles around other machines.

43° ROLLBACK AT GROUND – DIRECT LINE THRUST You get "bull-dozer" action with 5,200 pounds of breakaway in digging . . . high efficiency in stockpiling and loading operations.

LOW PACKAGE PRICE You'll be surprised how little it costs to own a Work Bull 1001. You can buy it with whatever attachments you need for profitable operation. Chances are that you will pay less for the basic unit and all attachments that you would normally pay for just one single-purpose machine.

Other Massey-Ferguson Industrial Power Packages include the Work Bull 202 (40 h. p.) Tractor, Work Bull 303 (54.5 h. p.) Tractor, Work Bull Fork Lift, Davis Loader and Backhoe plus a multitude of integrated attachments for each. *For information on the complete line ask for Brochure G-4 or for the Work Bull 1001 . . . Brochure W-1. Write Massey-Ferguson Industrial Division, 1009 South West Street, Wichita 13N, Kansas.*

Sweeper collects debris into self-contained dust pan; then dumps directly into truck.

Here the Work Bull 1001 is employed by a city in a sewerage treatment plant. Instant reversing, 43° rollback speeds handling.

Side-mounted mower matched to the Work Bull 202 has vibration-free counterbalanced drive.

MASSEY-FERGUSON INDUSTRIAL DIVISION

We Have Solved Our Street Patching Problems

. . . with a truck-mounted asphalt mixer

By J. M. ROBIE
Superintendent of Public Works
Belton, Mo.

The little community of Belton, Mo. gets big-city hot-mix for street maintenance at a thrifty price by using this truck-mounted tailgate mixer.

LIKE every city of the size of Belton, Mo. (approximately 3,000 in population), we have a limited street budget, limited equipment and a limited number of people to do a relatively large amount of work. Our streets are of the light-type surfacing variety, which requires considerable maintenance. To further complicate our street problems, traffic is ever increasing due to the influx of people from the Richards-Gebaur Air Force Base, located adjacent to the city limits.

Previously, we needed to do only a minimum of hole patching to keep our streets in repair. We purchased our cold-mix patching material from the nearest source, which required about a three-hour round trip per load. However, with the heavier traffic on our light-type surfaced streets, more and more holes began to appear until we had neither the time nor money to keep them in condition by the old methods.

Our forward-looking Mayor William V. Powell, suggested that we look for a better and cheaper method of keeping our streets patched and in repair. We also wanted to be able to patch the holes and breaks in the pavement when they first appeared regardless of the time of year.

Hot Mix Desired

If we could make our own patching material, utilizing our own equipment, we could reduce the cost considerably by eliminating the long, costly haul. However, it had been our experience that cold-mix patching was at best a temporary repair; it had a tendency to roll under traffic and ravel out in a short period of time. In addition, we would have to wait until warmer days to patch because of the tendency of cold-mix to become lumpy and hard to handle at colder temperatures.

It was obvious that we would have to find equipment or method that would permit us to heat up and rework our stockpiled patching material and make hot asphalt mix. For our city to own an asphalt plant would be prohibitive. Since we owned our own dump truck, we decided to find a piece of equipment to work with it, something inexpensive and economical to operate.

Tailgate Mixer

We were fortunate in locating a Heat-A-Mix tailgate mixer, manufactured by the Wylie Manufacturing Company of Oklahoma City. The unit is mounted on the regular tailgate of our dump truck by means of mounting hooks. The unit can be attached and detached from the truck in a matter of minutes by one man. This is important to us because the uses of our one dump truck are many and varied.

The Wylie Heat-A-Mix tailgate mixer is a rugged and well-built unit. It has a reversing transmission which moves the material back and forth over the heated section and gives a more thorough mixing. No direct flame comes in contact with the asphalt mix and the heat chamber is so constructed that the propane gas will drain out in event the flame is extinguished, thus preventing a flashback when the burner is relighted. The pugmill is flashproof. We are confident that the unit provides maximum safety for the crew.

Patching Procedure

The tailgate mixer can use either kerosene or propane for heat. We decided on propane because of the instant heat afforded. In addition, we are able to get it at a favorable bulk rate since other city installations use it for heating purposes.

Our method of operation is simple. We prepare 33-ton batches of cold mix at a time, using aggregate with a ⅜-inch maximum size placed in a windrow. We then shoot this with a 600-gallon load of MC-3 using our own maintenance-type distributor. We then mix the windrow using our tractor with blade attachment, and we are not too particular about getting a thorough mix because our

(Continued on page 177)

IN SHARON, PA.*

TYLOX *Rubber* PIPE GASKETS

• SPEED PIPE-LAYING • MAKE WATER-TIGHT JOINTS

on Shenango Freeway Sewer Project

This sewer line in Sharon, Pa., won't have to be "dug up" in a few years to repair leaky or failing joints . . . despite the *tough* pipe-laying conditions apparent in the photo above. In specifying TYLOX Rubber Gaskets, engineers took advantage of a coupling material *known* for its ageless qualities . . . for its ability to make sewerage and drainage pipe joints leak-proof and root-proof for the life of the pipe itself.

But more than that, along with the certainty of getting water-tight pipe joints, their TYLOX specification assured faster pipe-laying and therefore *lower* job costs . . . Flexible TYLOX is quickly assembled to the pipe, and permits fast assembly of the line. It compensates for pipe angularities, permits wet-trench jointing and immediate backfilling. TYLOX, in fact, is the *one* pipe joint that meets all requirements of engineers, sanitary officials and construction men alike. Specify TYLOX on *your* pipe jobs.

*

PROJECT: Sharon, Pa., sanitary sewer along approach to Shenango Freeway.

ENGINEERS: Chester Engineers, Consultants, Pittsburgh, Pa.

CONTRACTOR: Joe David & Son, West Middlesex, Pa.

PIPE: 21" reinforced Concrete TYLOX-Coupled Pipe, manufactured at Erie, Pa., plant of The Concrete Pipe Company of Ohio, Inc.

5037

HAMILTON KENT MANUFACTURING COMPANY

KENT, OHIO

427 West Grant St. ORchard 3-9555

By C. RUSCH
Admin. Ass't.
Fredericksburg, Va.

A "water works" booth at the local Home Show helps carry the message of metering and the low cost of water directly to the people.

How to Start A Water Metering Program—Properly

Fredericksburg, Va. shows how to change metering and billing procedures without irritating the public

THIS LEAKY FAUCET CAN WASTE
1000 GALLONS OF WATER A DAY
WILLING WATER SAYS. ALL IT NEEDS
IS THIS NEW WASHER
ALL YOU NEED IS THIS WRENCH
AND SCREWDRIVER TO FIX THIS LEAKY FAUCET
COME ON FOLKS LETS STOP ALL LEAKS
AND MAKE OUR WATER WORK
STOP WATER WASTE
Published in the interest of our water customers
WATER DEPARTMENT
City of Fredericksburg

Willing Water, appearing in the local paper, convinces many customers that costly leaks can be eliminated with ease.

WATER metering is frequently used to reduce water waste and to increase the number of years a city can meet its water needs without expanding facilities. Faced with an increasing demand for water, a limited supply that could become critically short during summer months, and a filter plant rapidly approaching full capacity we too turned to metering for help. Although this program achieved a significant reduction in water use and delayed the need for expanding treatment facilities about 10 years, the change from a flat rate to charges based on actual use was greeted with something less than universal joy.

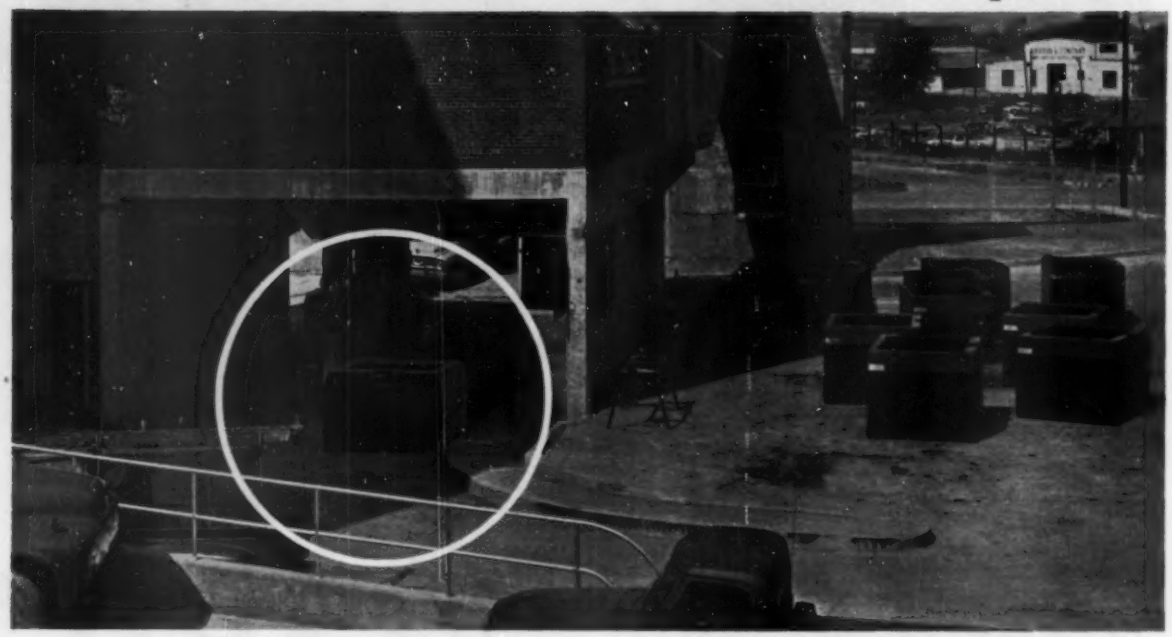
Not only were the customers surprised, but we also learned a great deal about public relations and the reactions of people under various conditions. These lessons may be of help to others.

Adverse Reaction

As one might expect, the unhappy citizens were those whose water bills increased because of metering. Several major items caused most of the dissatisfaction:

1. Resentment caused by lack of warnings; customers who had undetected leaks were unpleasantly surprised upon receipt of their first metered bill.
2. Misunderstanding of the new billing

How Louisville Incinerator Cuts Ash Handling Costs With the DEMPSTER-DUMPSTER System



DEMPSTER-BALESTER Turns Scrap into a $200,000 Boost for Taxpayers

Metal salvage is an important function of the Louisville Incinerator. Cans are processed, stored in a hopper and carried by dragline to a DEMPSTER-BALESTER scrap metal baling press. When the charging box is full, powerful hydraulic rams compress the scrap into a tight, easy-to-handle bale about 14" x 14" x 20". Bales are ejected onto a conveyor, which drops them into waiting cars on the railroad siding . . . yielding the city an estimated $200,000 annually from scrap sales.

Like the proverbial packing house, Louisville's Incinerator "uses all of the hog but his squeal." Dried sludge is sold for fertilizer, and scrap metal is baled at a profit. Even the residue ash is valuable for land fill and dump sealers.

That's where the DEMPSTER-DUMPSTER System steps in. Six-cu.-yd. detachable containers are placed under the ash residue hopper to provide temporary storage. The containers are filled on a 24-hour basis and stored out of the way until they can be emptied by the day shift. This pays off in fewer trucks and bigger savings. Ash is hauled to the disposal area and automatically dumped by the one-man-operated DEMPSTER-DUMPSTER.

Hats off to Louisville and its progressive Director of Sanitation, John Leake. We are proud to be a part of one of America's model incinerators.

If you are planning or building a municipal incinerator, write us today. One of our sales engineers will call without obligation and explain our system.

Mfg. by Dempster Brothers, Inc.

DEMPSTER DUMPSTER®

DEMPSTER BROTHERS

Knoxville 17, Tenn. Dept. AC-6

procedure and the water metering system.

3. Many who received large bills failed to realize the large amount of water waste resulting from even a small leak.

We of the administration made our mistake in dealing with this dissatisfaction by waiting for complaints. When an irate citizen stormed into City Hall, Water Department employees attempted to placate him by explaining the billing and metering operation and the amount of water a leak could waste. In cases where the customer remained convinced that the meter was wrong and denied the existence of leaks, we installed on the meter, for a 24-hour period, a device that recorded the time and amount of water used.

However, as any public official knows, an irate citizen is not especially susceptible to rational explanations. To ease the situation, City Manager F. Freeman Funk initiated several means to explain the program.

Corrective Measures

Forewarning forms the basis of our new program. Water department employees install meters prior to the date of the regular quarterly reading. Until the quarterly reading, customers continue to use water on the flat-rate basis. After the reading, they are billed according to the amount of water used. However, should the meter show an abnormally large water use between the date of installation and the reading date, the department notifies the customer of this fact by letter, advising him to check for leaks. This procedure allows the customer to correct conditions before a large bill jolts him into action.

The customer, upon receiving such a letter, frequently comes to City Hall with questions on billing and metering procedure and asks for suggestions on where to check for water leaks. In some cases, we install the recorder to indicate whether leaks do exist. Water department employees answered these same questions on a complaint basis, but there is a marked difference in the customer's attitude when he is made aware of high water use, whether from leaks or actual usage, before receipt of a bill based on the meter reading.

We also turned to the local newspaper and ran a series of cartoon advertisements stressing savings by eliminating leaks. The American Water Works Association furnished the cartoons and our city manager prepared the captions.

The local Home Show presented an excellent opportunity to present

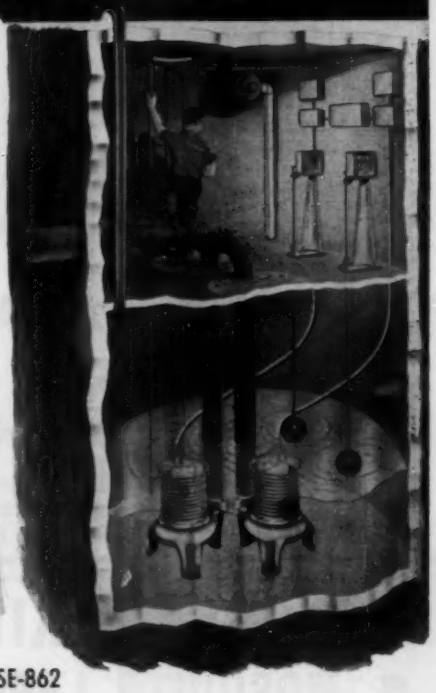
NOW WITH LOW SPEED MOTORS FOR LONGER LIFE

SUBMERSIBLE SEWAGE and SUMP PUMP

For Economical LIFT STATIONS

Low Initial Cost

Low Maintenance Cost



FEATURES

A true NON-CLOG impeller, most efficient design for handling rags, stringy material and irregular solids with the liquids. 5" pumps will pass 4" solids.

Send for Bulletins SE-860 and SE-862

See weil catalog in Sweet's 1958 and Domestic Eng. Cat. Dir. 1958

The weil Submersible NON-CLOG Sewage and Sump Pump has proven in thousands of installations that it operates efficiently and economically completely submerged under water. Depth of settings offer no problem; the only requirement is in selecting the proper unit with sufficient head to pump out of the sump. The pump is the same compact close coupled unit regardless of the depth of the pit.

Low Installation and Low Operating Cost

Economy and simplicity of installation — only one piping connection required — and very low maintenance due to the hermetically sealed motor, assure a low initial cost and years of trouble-free operation. No expensive pump house is required to mar the landscape.

Wide Range to Select From

The Submersible Ejector is available in discharges of 3", 4", 5" and 6" with heads to 60 feet and capacities to 2000 GPM. Motors of 1750 RPM or the new long-life slow speed 1150 RPM available for all units. Wide variety of controls available to fit special requirements.

weil PUMP CO.

1518A North Fremont St. • Chicago 22, Ill.

FISHER Leads Again!
New Transistorized Pipe Finder!

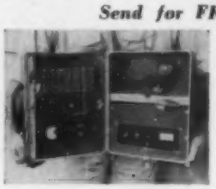
FIRST to build pipe finders;
FIRST to use Fiberglas cases;
FIRST to use single-turn, solid-metal loops—announces the world's newest transistorized pipe-cable finder.

Here's what exclusive Fisher transistorized design means to you:

- Greatest depth penetration
- Greatest tracing distance
- Pinpoint accuracy
- One year between battery changes
- Built-in Pulsator
- Built-in battery testers
- 90% less maintenance costs
- Built-in Leak Detector Circuit

M-Scope Electronic Witch Pipe Finder. Only $220.

Send for FREE 1958 catalog



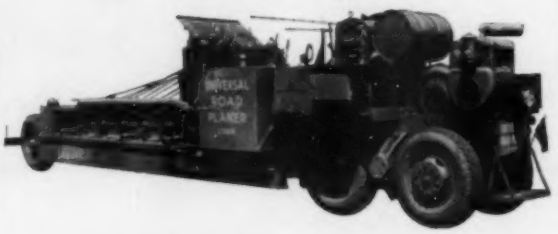
Fisher
Research Laboratory, Inc.
Dept. AC-3, Palo Alto, Calif.

FREE 10-DAY TRIAL OFFER

HEATER PLANER METHOD IS QUICK, CERTAIN AND ECONOMICAL, SAVES DOLLARS - LOTS OF THEM

1. Make pavement surfaces smooth as new, by planing only.
2. Planing in advance of resurfacing cuts costs 50%.
3. You need not invest money in expensive, single purpose equipment.
4. We do work on contract basis.

LET US GIVE YOU A PROPOSAL



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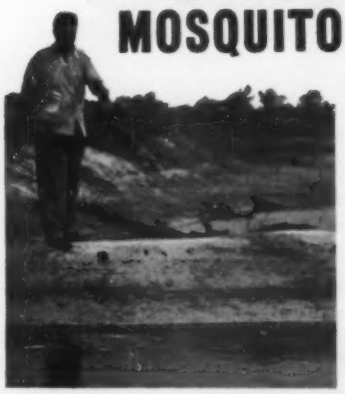

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Just toss them into infested water, capsule dissolves in minutes, spreading a lethal film in all directions on the surface. One Tossit larvicides 100 to 750 feet of water.

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IDEAL FOR HARD TO REACH AREAS

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MULCH-VAC SWEEPER

...for faster, more efficient litter & leaf removal!

Ideal for the removal of leaves, paper, and other debris, the Mulch-Vac saves time and money. One self-propelled Mulch-Vac can easily do the work many times faster and easier than men using hand implements, releasing manpower for other duties.

Wet or dry leaves are picked up, thoroughly mulched into natural fertilizer and either returned to the ground or gathered in a bag collector which comes as standard equipment with the Mulch-Vac. Paper and other refuse which normally would not be returned to the ground is gathered in the big 6 bushel bag. Because material is pulverized, capacity of bag is increased tenfold.

Also available for larger areas: 25 HP Towed, multi-unit type Mulch-Vac. For more information write:

Good Roads MACHINERY **GOOD ROADS MACHINERY Corp.**
MINERVA, OHIO

a display spotlighting the water metering program and emphasizing home water conservation. The water department booth included an actual meter installation with a short piece of water main, a meter barrel, water meter, service line and a spigot with running water. The Hersey Mfg. Co. supplied several electrically driven meters with portions of the casing cut away to show the working parts. In addition, we displayed a recorder and several charts portraying different patterns of water use and emphasized the low cost of water by filling and displaying 15 one-gallon jugs. A sign placed under the jugs reads: **The Best Buy in Town—15 Gallons For 1c.**

All persons visiting the booth received a printed card indicating the amount of water wasted by leaks of different sizes in water pipes. Each card also contained a standard faucet washer plus a printed request to ask water department personnel at the booth to demonstrate how faucet washers are replaced.

No doubt these procedures reduced the number of complaints stemming from the metering program, but more significant is the reduction in the number of people who come to City Hall "hopping mad". The measures we adopted made it easier to deal with and help the majority of persons with problems stemming from the metering program, and created a better public feeling toward Fredericksburg's water department.

40 Years of Service

IN 1918, Walter Bates, superintendent of public works, Darien, Conn., started working for his municipality in what at that time was known as the Department of Highways and Bridges. This year he retires after 40 years of continuous service. In addition to his duties as superintendent of public works, he also was a member of Darien's Park Commission, Planning and Zoning Commission, Safety Committee and Civil Defense Committee.

One of his accomplishments that has attracted attention throughout the entire country has been his construction of an incinerator in 1942 in the geographic center of Darien and operating it without creating complaints. The plant uses Pittsburgh—Des Moines furnaces, later equipped with Flynn and Emrich Co. hydraulically operated incinerator stokers. It was one of the first to use a crane operating on a monorail to transfer the refuse from the storage bin to the furnaces.

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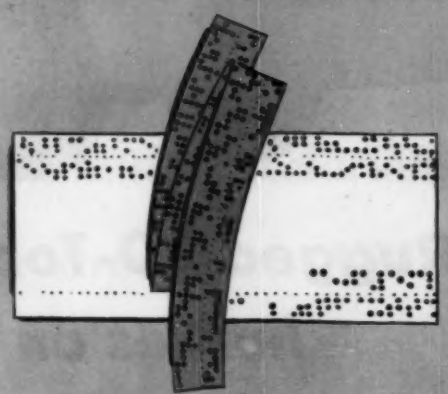

Electronic machines produce punched cards and tapes at astounding speed. Once punched many become permanent records to be used over and over again. Acme Visible Records and equipment provide for filing and fast finding, with SEEABLE indexing that speeds the handling of this material to keep pace with the machines.

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District Offices and Representatives in Principal Cities

ACME VISIBLE RECORDS, INC., Crozet, Virginia
We are interested in filing F-458
☐ Tapes (approx. length)_____
☐ Edge-punched cards
☐ I.B.M. Cards
} _____ (Approx. number of records)
☐ Have representative call. Date _____ Time _____
Company _____
Attention _____
Address _____
City _____ Zone _____ State _____

Rugged 20-Ton wrecker hustles on big "BIG CITY" jobs!

You just can't beat the hustle of a Ward LaFrance heavy duty wrecker on a service call! These 20-ton wreckers are exclusively built for large cities . . . built big to tackle big jobs. Equipped with two independently operated winches, each capable of hoisting 20,000 lbs. . . . solidly built on a rugged steel frame . . . custom-engineered to fit your specific local requirements. Backed by 40 years of truck building experience . . . fire apparatus, utility trucks and other specialized city equipment. For complete information, write us and we'll gladly talk over your heavy-duty vehicle needs.

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FIRE APPARATUS MANUFACTURERS FOR OVER 40 YEARS

Covina's fire prevention program stresses repeated contact with school children. Shown is a 1957 fire truck with body by Crown Coach Mfg. Co., Los Angeles. It is equipped with a 1,250-gpm pump, three-way radio, smoke ejector and masks, and floodlights.

Warm Community Relations from Fire Prevention Visits

By NEIL GOEDHARD
City Administrator
Covina, Calif.

STRUCTURAL fires per 1,000 of Covina, Calif. population dropped 30% from 1952 to 1956. Fire losses dropped from $2.50 per capita ($12,469) in 1952 to $1.26 per capita ($15,145) in 1956, to $0.69 ($10,713) in 1957 while population increased from 4,500 to 15,000.

Five years ago, Covina started its fire prevention visit program to help reduce the number of structural fires.

The second purpose of our program is public relations, literally meaning relations with the public.

During a fire prevention visit, our citizens often discussed various municipal services and made specific suggestions for improvements. While each fireman is specifically instructed to make no comment or rebuttal to these citizens' statements, they are now recorded on each *Dwelling Inspection* report after the firemen return to the truck. These comments are in turn forwarded to the City Administrator's office for follow-up so that the administrative staff of each department can gear its activities as closely as possible to the current sentiment. This is a new, yet economical method of keeping up to date in that priceless area of good community public relations.

Annual Visits

The manual stresses that the annual fire prevention visit campaign is the fire department's effort to reduce the number of fire deaths in structural fires by pointing out the fire hazards common to every home. Each fireman is reminded that this annual visit is possibly the only opportunity the fire department will have to meet citizens under anything but emergency conditions and that it is a wonderful chance to promote good will.

Firemen are especially reminded never to cut across any lawn and to request the homeowner's permission to make the inspection by saying:

We are from your Covina Fire Department. With your permission, we will point out to you any condition that may cause a fire in your home. We will not issue any orders, but will appreciate your cooperation in our efforts to prevent fires in the home.

The *Dwelling Inspection* report is made for every residential, commercial, industrial and institutional structure in the city and all hazards and comments are noted in the appropriate spaces. This form provides for the listing of building conditions, type of construction, housekeeping, combustible storage and dry weeds or grass storage on the premises.

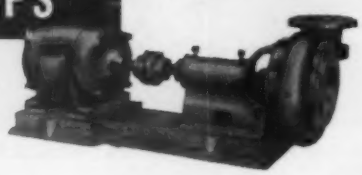
New Items Added

Three items have been added to this year's form. With the October 1, 1957 ban of backyard incinerators in Los Angeles County by the Air

IMAGINE THAT! *The BALANCED Impeller may be trimmed to suit other heads and capacities — yet REQUIRES NO SEPARATE COUNTERBALANCE.*

AURORA
NON-CLOG
HORIZONTAL & VERTICAL
MONO-VANE
SINGLE PASSAGE IMPELLER
PUMPS

WRITE for BULLETIN 121 MV



Type KGG Aurora Horizontal Mono-Vane Non-Clog Pump

The exclusive new Mono-Vane impeller represents a major advance in the technique of non-clog pumping. This unique impeller can be trimmed to various diameters — REQUIRES NO SEPARATE COUNTERBALANCE because it is in dynamic and hydraulic balance — and affords a wide range of operation by merely trimming the impeller for each head and capacity requirement.

UNSURPASSED FOR HANDLING LONG STRINGY SOLIDS

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IDEAL FOR ELEVATING SEWAGE — PUMPING SLUDGE — HANDLING HEAVY SETTLEABLE SOLIDS, EFFLUENT AND OTHER WASTES

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TROUBLE-FREE PERFORMANCE — CONVENIENCE and LASTING ECONOMY

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DISCHARGE MAY BE TURNED TO ANY POSITION — ACCESSIBLE for CLEANING

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SMOOTH, QUIET OPERATION

Type KU Aurora Vertical Mono-Vane Non-Clog Pump

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KEEP YOUR STREETS "HEALTHY"

During the hot, dusty months of midsummer an Etnyre Sanitary Street Flusher will keep your streets clean, cool and healthful by reducing bacterial count and disease hazard, laying dust and cooling hot pavements. Streets up to 42 feet wide cleaned in ONE TRIP—even under parked cars. See your Etnyre dealer for full information or write us today!

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How to Profitably Use Your FencPainteR #458 Striper

This #458 Striper will do 90% of all your striping jobs. It's simple, inexpensive and practical.

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Pollution Control District, the fire department invited all residents to demolish their incinerators and place them at the curb for collection by the Sanitation Division. During the first week 54 of the 69 residents who possessed incinerators agreed.

The second item is the listing of all homes that have swimming pools in their backyards. This is regarded as important in knowing the location of emergency water supply as well as in aiding the Building Department in the enforcement of an ordinance requiring all pools to be enclosed by approved fences and self-locking gates. The list of all swimming pools is passed on to the building department so that they can ascertain that all pools have been legally constructed through the issuance of a building permit as well as check on any fences which the firemen believe to be of doubtful security.

The third item is the noting of any businesses which may be conducted in any restricted zone. Any municipal official who is worried by the possible deterioration of neighborhood values due to illegal business activities in any given zone will readily recognize the value of this support from the fire service.

Well-Dressed Firemen

Our program is more readily accepted because of the immaculate dress requirements. Prior to each visit every fireman is inspected for a clean, well-pressed uniform complete with cap, badge, a clean shave and polished shoes. No exceptions to this full-dress requirement is permitted except for the probationary firemen who must fulfill the same standards in dungaree work uniform. Recently, the tailored insignia of the city's seal has been added to the dress uniform on the left shoulder and to the work uniform above the left pocket.

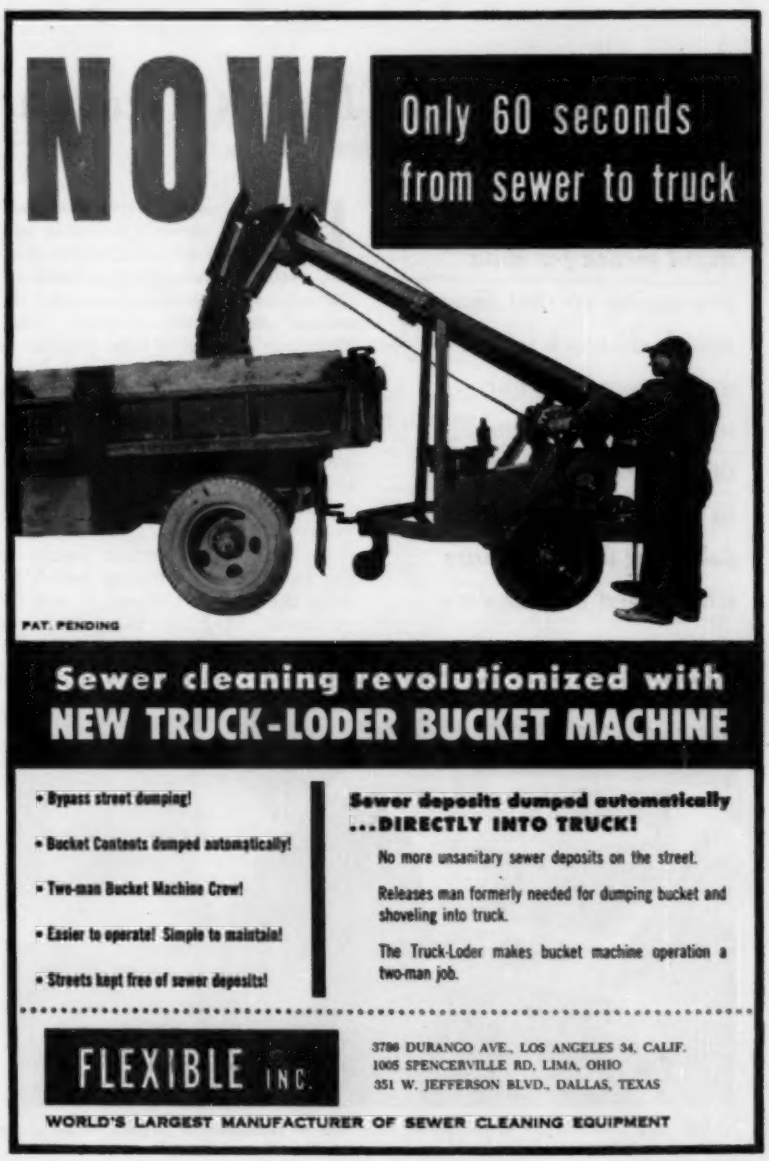
Since everyone in the official municipal family is usually speculating as to the current "barometer" of the citizenry regarding overall city services or a particular project, the noting of unsolicited comments to the firemen from our people provides us with a valuable management technique. Due to such overwhelming deterrents as lack of funds, poor response to questionnaires, and lack of manpower, municipalities generally have no routine procedure whereby the comments made by the citizenry are collected, reported and channeled to the appropriate department or official who can begin the successful settlement of whatever situation may be involved.

Public Health Film Highlights Local Community

A PICTURE entitled "Colorado Cares", produced for the Colorado State Department of Public Health, is a documentary presentation of a community effort to better the health and educational opportunities for migrant agricultural workers. It is a 20-minute sound, color 16 mm motion picture shot entirely on location in Western Colorado. The setting is a peach harvest during the late summer and is about real people, real places, and real events surrounding the activity.

The State Department of Public Health produced the film for use by educational and service organizations who have an interest in public health, welfare, and educational problems. It will also interest persons, and groups, associated in any way with health and social work, as well as religious organizations dedicated to public service.

The film is available on free loan from the Colorado State Department of Public Health, Health Education Section, 1422 Grant St., Denver 2, Colo. Prints of the film may be purchased for $98. The film has been cleared for TV and nontheatrical presentation.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Only 60 seconds
from sewer to truck
PAT. PENDING
Sewer cleaning revolutionized with
NEW TRUCK-LODER BUCKET MACHINE
• Bypass street dumping!
• Bucket Contents dumped automatically!
• Two-man Bucket Machine Crew!
• Easier to operate! Simple to maintain!
• Streets kept free of sewer deposits!
Sewer deposits dumped automatically
...DIRECTLY INTO TRUCK!
No more unsanitary sewer deposits on the street.
Releases man formerly needed for dumping bucket and shoveling into truck.
The Truck-Loder makes bucket machine operation a two-man job.
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1005 SPENCERVILLE RD, LIMA, OHIO
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WORLD'S LARGEST MANUFACTURER OF SEWER CLEANING EQUIPMENT

By W. T. THRASHER
County Judge
Hamilton County, Tenn.

County Judge Wilkes T. Thrasher (left) and Duane Giddings, Director of Accounts and Budgets, aim at greater efficiency and lower costs.

Punched Tape Boosts Accounting Efficiency

Automatically produces input media for data processing so that five people do work which would require eight without this system; 66 expense ledgers suffice in place of former 500; jobs now done in hours which used to take days

BY developing a new budgetary control, payroll, accounts payable and general ledger posting system, efficiency has been increased and operating expenses decreased at Hamilton County, Tenn. Principal feature of the system is the automatic preparation of input media for data processing. With it five people now do more work faster, easier and more accurately than seven did formerly. Without the system eight or nine personnel would be required to handle the present volume of work.

An equally important result is the two up-to-date figures which inform the County Council or any department head of the status of their budgets—expenditures, encumbrances, revenues, balances.

An important part of the system is a tape that is perforated automatically as primary records are posted. The tape is sent to a data processing service in Atlanta, where it is converted into punched cards that run off detailed statistics and reports. Only the tape is sent out. All controls and primary records remain in the department.

Hamilton County embraces an area of 576 square miles in south central Tennessee. Included in the county are the ***City of Chattanooga*** and the ***Towns of Lookout Mountain, Signal Mountain*** and ***East Ridge.*** Population is 249,000. Because of its scenic beau-

Operator Tot Murphy at perforated tape that is furnished as payroll forms are posted. (Right) a two-total calculator is used to determine gross hours, pay amount, departmental totals on time sheets.

ty, around five million people visit the county annually and create a tourist business of over $33 million. To operate the county, the 1957-1958 budget was set at $12,148,145.29.

Statistics in Tape

For a number of years the county took advantage of mechanized accounting equipment. It was not until last February, however, that the present methods were developed and two Burroughs Sensimatic-to-Tape accounting machines were installed by the county.

As purchase orders are received an adding-machine tape is run of the amounts to establish an immediate control figure. The approved orders are then signed by a Burroughs Todd signature disburser. This guarantees that only approved purchased orders are distributed to our suppliers.

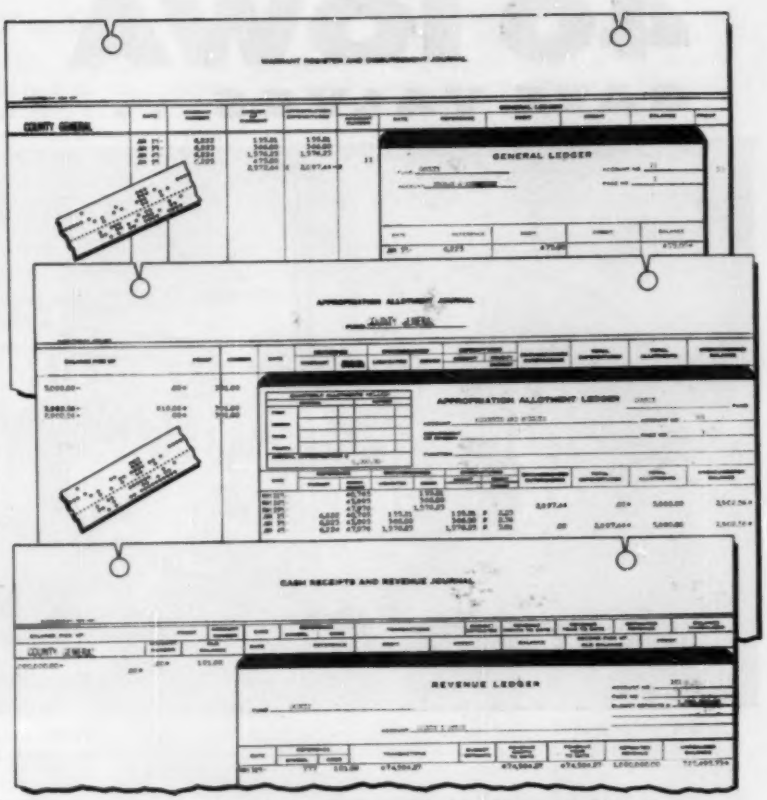
Appropriation and allotment ledgers for each department are then encumbered, with new balances provided automatically and the Sensimatic total agreeing with the adding machine control figure. When posting encumbrances the perforated tape is in off position.

When invoices and material are received, the checks are written and run through a Burroughs Todd Protectograph. A warrant or check register and the affected general ledger accounts are then posted in one operation with the perforator unit punching the tape. Each posting is machine proved as it is made. Should an error occur, it not only prints on the journal, but a buzzer sounds on the perforator and the equipment stops operating until the error is corrected.

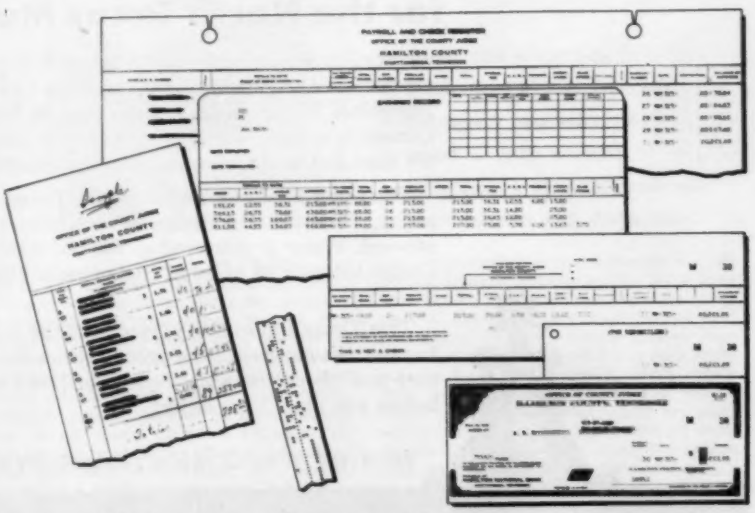
Drudgery Slashed

To obtain figures reflecting expenses we formerly had to maintain 500 ledgers. Now, because the tape we send to the data processing center provides us with breakdown figures of expenditures by object classification, the 500 ledgers have been reduced to 66 ledgers. This means that the department now spends four hours on work that formerly required as much as four days to complete.

To control revenue, receipts are first listed in a county judge's receivable warrant journal then machine posted to revenue ledgers. We have 69 revenue accounts. Formerly it required three or four days of work a month to keep them up to date. Now the job is accomplished in half a day—neatly, efficiently.



As key budget ledgers are posted, journals are furnished. Note automatically perforated tapes that are sent to a service bureau for securing statistical reports.



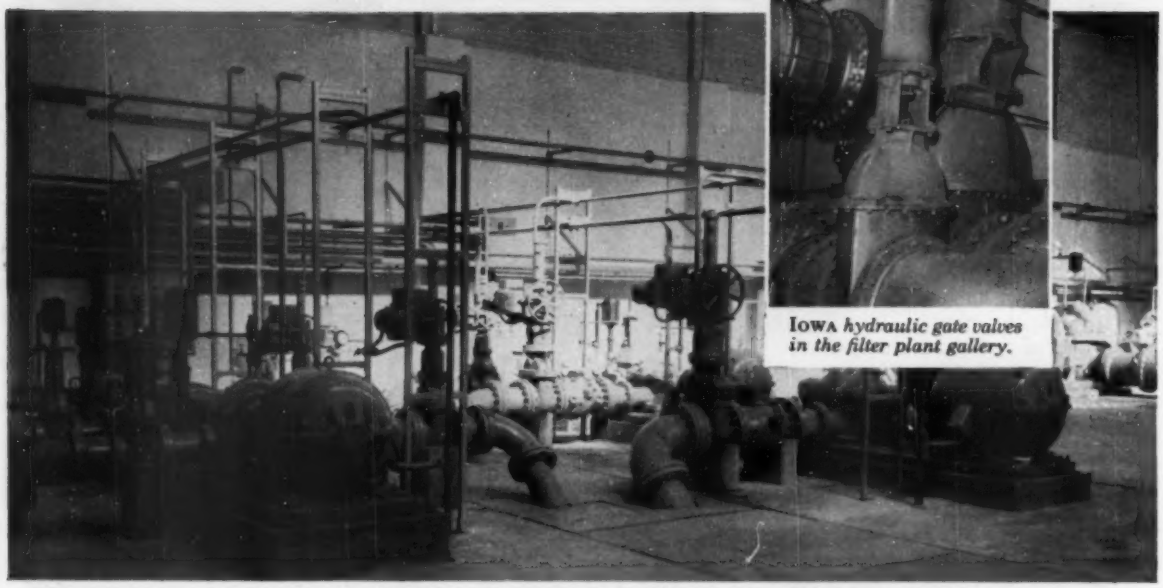
Hourly rated payroll is prepared from departmental sheet (left). Register, earnings record, statement, reconciliation ticket, check and punched taped are done in one operation.

Of the 300 county employees, half are salaried and half are hourly rated. Formerly it required two days to complete the salaried employees' payroll. Now the job is easily accomplished in three hours.

For hourly rated employees, a time sheet shows hours worked and gross pay. Individual amounts appear in the lower dials of a Burroughs two-

40 IOWA GATE VALVES...

IOWA *hydraulic gate valves in the filter plant gallery.*



IOWA *motor-operated gate valves installed in the main pump station of North Texas Municipal Water District. (General Manager: Mr. A. P. Rollins; Consulting Engineers: Forrest and Cotton; Design Engineer: Mr. Ormond A. Stone.)*

Control delivery of
20 million gallons of water a day
for the North Texas Municipal Water District

• Forty IOWA Hydraulic and Motor-operated Gate Valves—from 4" to 30" sizes—are used in the Filter Gallery and High Lift Pump Station of the North Texas Municipal Water District, supplying 10 North Texas Municipalities and the District's largest customer, the City of Dallas. Additional IOWA gate valves are used in the six pumping plants operated by the district.

The Filter Plant, located at Wylie, Texas, has a capacity of 20 million gallons a day. However, the design is such that it can operate safely at twice this amount. Water is delivered to the ten member municipalities and the City of Dallas through 90 miles of transmission line, ranging from 12 to 42 inches in diameter.

This Texas application is typical of the ability of IOWA to furnish gate valves to meet the most exacting specifications for plant and distribution service. Be sure and check the wide variety of IOWA valves, accessories and specialties before you place your order.

Let us send you details on Iowa's complete line of valves and hydrants

IOWA
VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.
Oskaloosa, Iowa

total calculator. Departmental totals store in the upper dials.

Using the time sheets, the payroll journal, pay checks, statements, earning records, reconciliation tickets and the perforated tape are completed in the same operation. The reconciliation tickets are placed in a binder. As cashed-in checks are received, the corresponding tickets are pulled, leaving only the outstanding tickets in the binder. The totals of cashed-in checks plus the reconciliation tickets remaining in the binder must equal the payroll total.

Pension Records Simplified

Another job that has been greatly simplified is the handling of individual pension contribution records, which show the earnings and pension contributions of each employee. Except for refunds or transfers, which are posted directly from notices, the records are posted from a pension contribution report supplied by the service bureau. Formerly, one or two days a month were needed to keep these records current. Using the Sensimatic, the job now is done in one or two hours.

We have aimed at securing the figures and information required for good governmental procedures—through a system that would be accurate, simple, economical and rapid. Our system has turned out to be just what we sought.

Better Home Incinerators

HOME INCINERATORS apparently are getting better. Based on designs developed by the American Gas Association, 470 Lexington Ave., New York City, several manufacturers are now producing these small disposal units that they assert are smokeless and colorless. Some municipalities did not permit the installation of domestic incinerators approved under the American Standards.

In the past, American Standards for domestic incinerators were relatively nonrestrictive with respect to odor and fly ash. Now new incinerators made by Calcinator Corp., Bay City, Mich.; The Majestic Company, Inc., Huntington, Ind.; Martin Stamping & Stove Company, Huntsville, Ala.; Locke Stove Company, Kansas City, Mo.; Caloric Appliance Corp., Topton, Pa.; and Waste King Corp., of Los Angeles, have been certified for compliance under the new standards. A copy of the standards may be obtained from the American Gas Association.

Watch Pistol Licenses

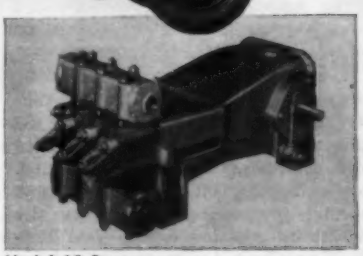
NEW regulations and procedures governing the issuance of pistol licenses in New York City limit the privilege to persons of reputable character who legitimately require a permit in connection with the pursuit of their livelihood.

The new regulations setup of the Police Department call for a notarized affidavit to be submitted by each of three vouchers required with each original license application and renewal. This affidavit covers both the personal history of the voucher and questions concerning his knowledge of the applicant.

A more comprehensive investigation by patrol sergeants of the licensee's application is required. The application also requires the endorsement of the commanding offices of both the precinct and the division and is also checked by the detective division.

Get tree top performance, all around versatility

with the *NEW* John BEAN Hydraulic Sprayer



Model 60 Pump

★ SHADE TREE SPRAYING
★ SANITATION & PEST CONTROL
★ EMERGENCY FIRE FIGHTING
★ BRUSH & WEED CONTROL
★ EQUIPMENT & BUILDING CLEANING
★ ROOT FEEDING AND FERTILIZING

FEATURES NEW ROYAL 60 PUMP — The heart of the *New* John Bean Hydraulic Sprayer is the Royal 60 fully enclosed triplex plunger type pump. Rugged and compact, this *New* Royal 60 is the product of several years of testing by John Bean engineers. Capacity is 60 gpm with pressures adjustable up to 800 pounds; double plunger packing assures maximum capacity at all times; Sapphite cylinders for longer life and more efficient operation; fast operating, non-clogging disc valves. Now — a high pressure unit that meets your community's requirements for all around spraying protection. The NEW John Bean Model 60-MT hydraulic sprayer gives you — dependability and greater fuel economy — 60 gpm capacity to cover tops of high trees — the ability to add extra hose to reach hard-to-get-at places. Only 10½ feet long, the streamlined Model 60-MT can be mounted easily on short wheel base trucks. Equipped with all steel, corrosion resistant Bean Bond 600 gallon tank with optional 1000 gallon tank.

Also ask for details on the 3 Rotomist sprayers

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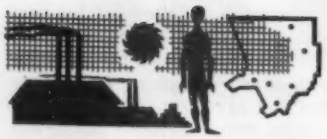
Attach Coupon to Card or Letterhead — Give Name and Address



HELP CONTROL SMOG

The City Tells Its Story

Edited by PAN DODD EIMON
Executive Director, Government Public Relations Association

Summer's not smog time . . . but smog control is year-round challenge

Los Angeles Channels Public Support With Fact-Laced Information Program

SMOG is something every citizen in the more than 60 municipalities that make up the Los Angeles district can see, smell, and feel. And nobody likes it! But this doesn't mean that people in Los Angeles and neighboring communities automatically support air pollution controls and the agency that administers them.

Back in 1947, when the Los Angeles Air Pollution Control District (APCD) was formed, some folks thought that—once facts about pollution were determined and a means of getting cleaner air devised—people would rush to comply and shower the APCD board and staff with thanks. Despite sound work by the agency, 1947-54, the smog got worse, people complained more than ever, control measures were thwarted by public misunderstanding, and APCD staff morale was at an all-time low with several vacancies.

Technical studies indicated that four control measures were necessary:

- Banning all forms of refuse burning within Los Angeles County to choke off the daily emission of 400 tons of critical contaminating substances to the atmosphere.
- Controlling exhausts of two-and-a-half million motor vehicles to stop the outpouring of 1,200 tons of smog-forming hydrocarbons daily. Since no technical remedies were available for this particular problem, it meant broadening research and development.
- Acceleration of industrial plant inspection and enforcement to assure maximum source compliance with regulations.
- Starting a disaster-prevention program to provide for monitoring the atmosphere and preventive measures such as halting operations of industry and automobile traffic in the event contaminant concentrations reached hazardous levels.

Each of these required public support. A series of technical and lay reports recommended the setting up of a public information and education division. Such a division was established early in 1955 and for the past three-and-a-half years has operated an all-media program to inform people, change attitudes, influence public opinion, and secure understanding of and cooperation with control measures.

Some 70,000 newspaper column inches have been stimulated by news and photo releases. TV news, public service announcements via radio and TV, special programs on the broadcast media, and house organ releases have taken the smog-control whys and wherefores to other thousands of watchers, listeners, and readers.

Roughly 150 publications have been written and sent to an estimated 3,000,000 people. Nearly 45,000 telephone and letter inquiries and complaints have been handled. More than 200,000 people have heard special programs arranged by the APCD information office. One hundred tours of APCD facilities have been arranged.

Nearly 300,000 people have attended 150 exhibits and visual displays. Seventy-five employee orientation programs have been set up for 1,300 employees. And, in 1957, for which full-year figures are available, 24 separate information mailings were made to a key listing of 8,000 people.

Elements of the information program are applicable to almost any public improvement project. According to Arthur A. Atkisson, Jr., information officer, these have included:

Press Relations—Basic data regarding causes of smog, sources of air contaminants, elements of the antismog campaign were organized into kits for members of the press. These are kept in a "constantly current status" so that "requests from the press are satisfied without delay or extended staff effort."

Although the press was given free access to the APCD staff (and staff members were instructed to respond honestly to all questions asked of them), the public information office attempted to service the press before a need arose. No attempt was made or is made to "cover up or gloss over matters." Even when information provided has led to criticism of the APCD program, the information is given. Operating under this policy, the press now looks upon the information office as a source of "objective, reliable, and authoritative information."

The information office does spot news releases as well as more complete feature articles for the newspapers, news services, radio and TV stations. From time to time, film clips are prepared on news events for distribution to the television stations.

Community Relations—A multiphased program was undertaken to bring APCD into direct contact with organizations and civic leaders. Early in 1955, a communitywide conference on air pollution was held. The program was cosponsored by APCD, a private research agency, and the state Chamber of Commerce. Acting as a Conference Committee were Los Angeles' most distinguished citizens. Proceedings of the first conference were published and distributed to an extensive mailing list. The 1955 conference was so successful that the conference has been made an annual affair since.

An 8,000-name mailing list has been developed which includes each civic group in the district, members of citizen smog committees, representatives of the mass media, elective officials, plant managers, and other persons having an interest in the

Everyone benefits with

AUTOMATIC VOTING MACHINES

VOTERS: Secret ballot plus easy, fast, voting.

CANDIDATES: Accurate, fast, and tamper-proof count.

TAXPAYERS: Reduced election costs.

ELECTION OFFICIALS: Smooth, efficient elections. Immediate returns eliminate all-night counts.

AUTOMATIC VOTING MACHINE CORPORATION
Jamestown, N. Y.

These Cities, States & Turnpikes Are Doing More Work and Paying Less with the

NETCO Catch Basin Cleaner

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East Cleveland, Ohio
Cumberland, Maryland
Indianapolis, Ind.
Lansing, Michigan
Jersey City, N. J.
Worcester, Mass.
New York, N. Y.
Boston, Mass.
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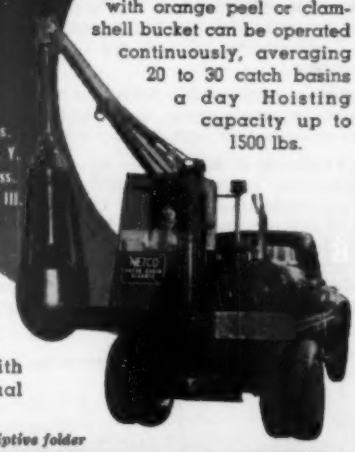
Easily mounted on any short wheel base truck with 8 ft. in back of the cab, the NETCO with orange peel or clam-shell bucket can be operated continuously, averaging 20 to 30 catch basins a day Hoisting capacity up to 1500 lbs.



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a **NEW** solid-color PVC

POLY-CONE*

tough, durable, no seams, will not CRACK, TEAR or BREAK!

This new SAFE-T-CONE never needs repainting. Just wash it with soap or solvents. Made of polyvinyl-chloride to produce the toughest, *most durable cone on the market.* Outlasts ordinary cone many times . . . . without upkeep!

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Brilliant SOLID YELLOW or SAFE-T-GLO COLORS

SAFE-T-CONE® 2191
TRAFFIC GUIDES

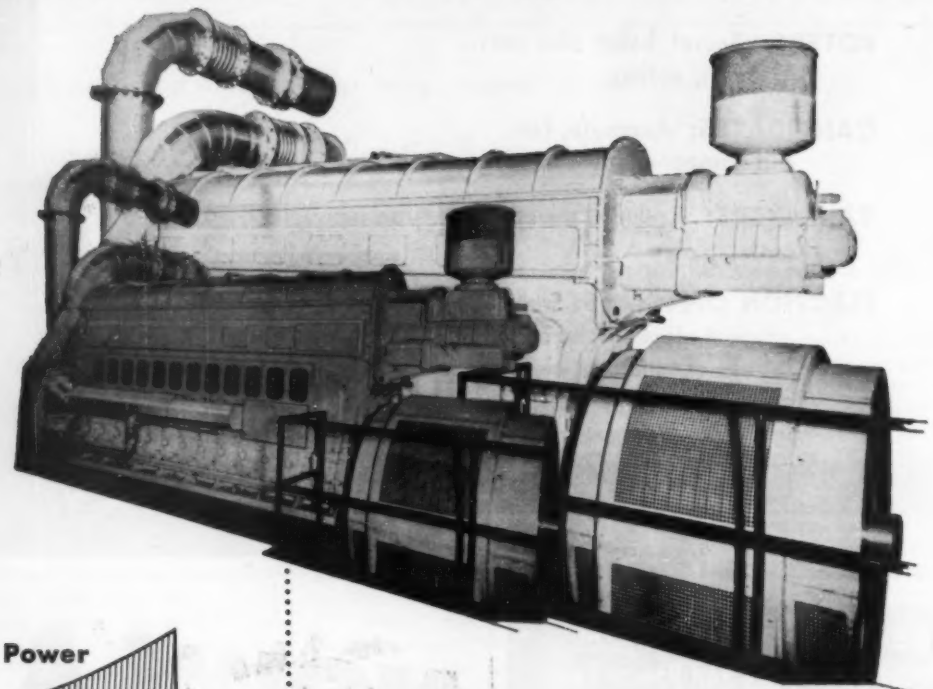
All-Rubber SAFE-T-CONES available in 3 SIZES!

Painted or Reflectorized ALL RUBBER
Regular all-rubber SAFE-T-CONES, now better than ever. Painted standard red and yellow or reflectorized.

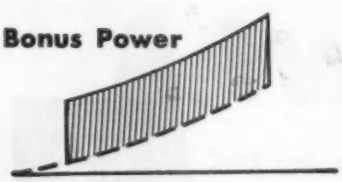
Plastic or All-Rubber FLUORESCENT
New Poly-Cones and All-Rubber cones available in brilliant orange-red fluorescent for extra brilliance, day or night.

SAFE-T-CONES made only by **Radiator Specialty Co.**
Charlotte, N. C.

50% More Power with Fairbanks-Morse TURBOCHARGED OPPOSED-PISTON DIESEL

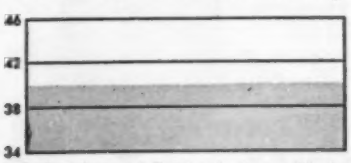


Bonus Power



Auxiliary blower is automatically declutched at loads above approximately 1/3 rating to deliver more usable power at the flywheel.

Increased Thermal Efficiency



Turbo-charged Fairbanks-Morse Model 38TD-8 1/8 Opposed Piston Diesel is approaching a new high of 40% efficiency.

New Efficiency...New Power...New Fuel Savings For Marine and Stationary Applications

The industry's most compact, simple, and dependable diesel—the Fairbanks-Morse Opposed Piston—*is now turbo-supercharged!* Fuel savings from 5% to 10% are effected on full-load operations—even more on part loads. And 50% more power has been added. At 900 rpm, for example, it is conservatively rated at 300 hp per cylinder. Yet it occupies vitually the same space as the non-supercharged version...weighs only about 8% more. Look at the advantages in this usually low size and weight per horsepower.

Stationary installations—save on foundation and building costs.
Commercial marine use—more power, speed, fuel and cargo capacity.
Portable operations—save with most compact power available today.

Greater power is available at higher altitudes because the engine is less sensitive to atmospheric pressure. Oil and water cooling requirements show almost no increase at the higher output. It's all possible with careful matching of system and engine. Divided manifolds permit use of exhaust pulses with no pressure cancellations. Engine-driven auxiliary blower provides scavenging air up to ¼ load—declutches above this figure to make additional power available at flywheel. For full information write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

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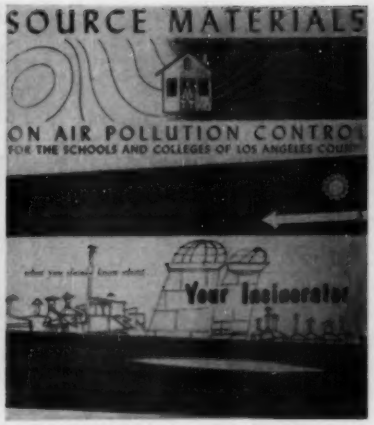
a name worth remembering when you want the BEST

DIESEL AND DUAL FUEL ENGINES
DIESEL LOCOMOTIVES • RAIL CARS
ELECTRICAL MACHINERY • PUMPS
SCALES • HOME WATER SERVICE
EQUIPMENT • MAGNETOS



Three million people have received some of the 150 publications, of which these shown are typical, to rally support for smog control and cleaner air in the Los Angeles district.

APCD's *Report* is the monthly communication going to an 8,000-name mailing list with another 32,000 distributed in other ways. *Smog Briefs* are mimeographed technical reports.

Los Angeles air pollution program.

A speakers' bureau was organized to service requests from civic groups. Each week, 30-to-50 letters are dispatched to such groups indicating the availability of APCD speakers to discuss various phases of the air pollution problem. "We have been able to sustain consistent speaker activity this way," Mr. Atkisson points out, "averaging 12 speeches per week throughout the year."

Public and parochial schools have been urged to incorporate materials on air pollution into regular instructional programs. Speakers, motion pictures, colored slides, classroom exhibit materials are made available for class work. And regular teacher training institutes have been held during which teachers receive instruction from APCD representatives.

Publications Program—A complete "package" of publications has been developed to meet requirements in the Los Angeles district.

"Smog Briefs" were designed to give accurate information on detailed aspects of the air pollution control program. Planned primarily for the mass media, educators, and other "instructors", they have proven popular, too, for the general public. These are distributed to no fewer than 10,000 persons. The circulation of several has reached 100,000.

A "Monthly Report" is the means by which APCD communicates current information to persons on its regular mailing list. Feature materials presented in it are reprinted as "special reports" for more extensive distribution. The monthly report has a 40,000-unit circulation.

Information pamphlets have been produced in substantial quantity for the general public. They are marked by simplicity of design and brevity of subject matter. One of the pamphlets, "Clean Air for Los Angeles," went to 300,000 persons while another, "You and Your Incinerator" went to a select audience of approximately 30,000 apartment-house owners, janitors, and business-industrial establishments.

Panel Boards and Exhibits—Literature racks were constructed and have been placed in nearly 200 public buildings, banks, transportation terminals, and supermarkets. These provide space for APCD publications and a panel board on which visual exhibits may be posted. Seventy thousand publications are distributed monthly via these racks.

Exhibits have also been prepared for the County Fair, the home show, and other major expositions. Portable exhibit elements have been designed for use at smaller conferences and in schools.

Quick Responses to Letters—The information office had to organize an efficient correspondence and complaints operation. So, a series of standard paragraphs which, in various combinations, can be used to answer the most typical requests, are recorded on punched rolls for a robotyper. After setting of controls, this automatic typewriter selects from its punched cylinders the proper paragraph and types them in the desired pattern. Thus, all letters are "originals" and can be prepared quickly with a minimum expenditure of staff and clerical time.

That the Air Pollution Control District's information program has been successful is evidenced by results:

1. Recent public opinion surveys conducted by private organizations revealed a general feeling of public confidence in the air pollution control program and growing acceptance of APCD's premise that motor vehicle exhausts are the leading contributor to the smog problem.

2. The ban on refuse burning was consummated last October with no unfavorable public reaction. Each of the Los Angeles area municipalities were ready with organized refuse collection and disposal programs.

3. The APCD's total budget and authorized staff has been increased by more than 200% since January 1955.

4. For the first time in several years, APCD successfully sponsored certain needed legislation in the 1957 California State Legislature.

A Sound Formula

Public Information Officer Atkisson sums up:

We feel that the initial purposes for which our public information program was brought into existence . . . have been met and that the advantages of the public information and education effort to the APCD operations has been clearly demonstrated. The public information and education unit will continue as an integral part of the Los Angeles Air Pollution Control District work.

The Los Angeles formula — facts, public relations planning, and wise use of media—can rally support not only for smog control but for almost any municipal improvement effort: new public facilities, bond issues to finance them, taxes to support them, and public use and enjoyment of such facilities.

Giant 1½ Cubic Yard Hopper Speeds Pick-Ups!

LOAD-PACKER 500

Gar Wood's revolutionary LOAD-PACKER 500 is designed for fast, efficient loading. Giant 1½ cubic yard hopper lets two men work side by side. And fewer packing cycles are required. Check these other outstanding features:

Crew Starts to Reload in 4 Seconds

Complete Cyclomatic-Packing cycle takes just 10 seconds...crew actually starts to reload only 4 seconds after cycle begins.

Greater Compaction Increases Loads up to 25%

Dual packing cylinders exert force directly at floor level. The "500" packs up to 25% more refuse per load than any other rear-loaded unit.

The LOAD-PACKER 500 means bigger and better service at lower overall cost. Contact your Gar Wood-St. Paul truck equipment distributor. Or, write to Customer Service Dept., Gar Wood Industries, Inc., Wayne, Michigan.

New Gar Wood Pax-All Refuse Containers snap quickly on and off without use of chains or cables. Complete hydraulic operation is controlled with one lever. Simple yet rugged design stands up under day-in, day-out use.

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PHOTOS COURTESY OF ROCKFORD REGISTER

Winnebago County's mapping technique: (Left) a draftsman traces in pencil information from the aerial map onto linen tracing cloth. (Right) a second draftsman, getting the data from a paper sepia map, inserts property lines on the cloth.

Budget-Priced Property Maps

By RICHARD A. PESAVENTO
Winnebago County Surveyor
Rockford, Ill.

WINNEBAGO COUNTY, Ill. is getting a complete set of property maps at bargain prices. The maps show buildings, roads, streets, railroads, rivers, fencelines and other features in addition to property boundaries. The new maps are based on aerial surveys being completed by Aero Service Corporation of Philadelphia.

Detailed aerial photography, which serves as a foundation for the preparation of the base maps, is the first step in the survey. The base maps, covering the 503-square-mile county area, are prepared with precise stereoplotters by Aero Service photogrammetric engineers. The individual map sheets are drawn in pencil to cover a section of the county roughly three miles long by one mile wide. They are delivered in the form of stable positype manuscript at two scales: 1 inch = 200 feet and 1 inch = 400 feet, depending on the density of the homes and buildings.

Draftsmen then trace in property lines for real estate owners as listed in the county recorder's office, showing ownership as well as lot lines. Rockford College engineering students, working part-time, compile the data and do the drafting.

The draftsmen assemble assessment code numbers for each subdivision lot and enter these on a blueprint worksheet. For rural acreages, they insert codes, owner's name, size and recorder's book and page numbers where a full legal description can be obtained.

Sepia copies of each base map are made, each showing one section of land. Two college girls place the

Left:
The typist fills in on the paper sepia all numbers and letters with the proportional-spacing typewriter.

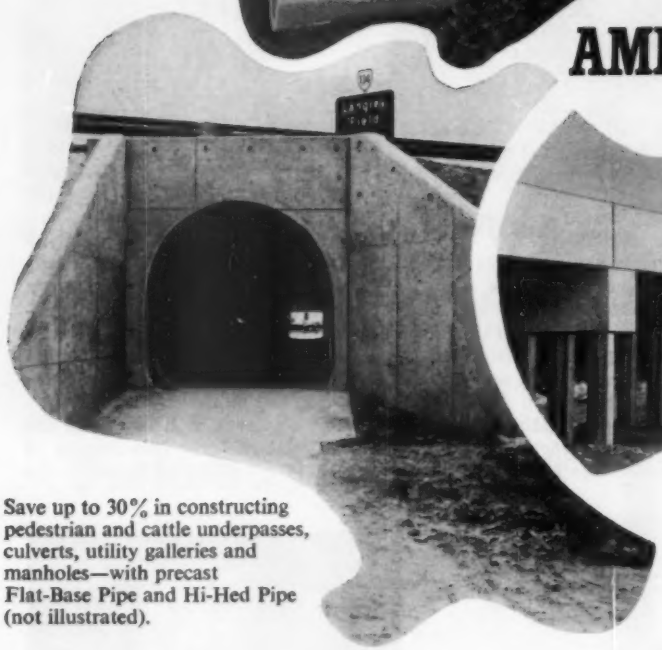
Right:
The author checks the acetate sepia copy, made from the paper sepia. This is now the permanent copy and all corrections are to be made on it.

PRECAST PIECES TO FIT YOUR PUZZLE...

Precast concrete bridge, cribbing and pipe—integrated pieces of a single job—all reinforced for greater strength and made of concrete for permanent, maintenance-free service.

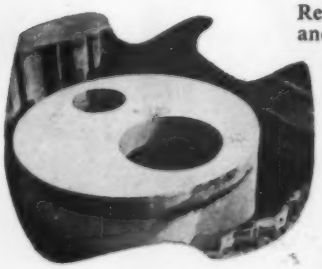
...all from

AMERICAN-MARIETTA



Save up to 30% in constructing pedestrian and cattle underpasses, culverts, utility galleries and manholes—with precast Flat-Base Pipe and Hi-Hed Pipe (not illustrated).

Save time by using American-Marietta precast reinforced piling and bridge slabs—ready for installation when you need them.



Reinforced concrete lift stations and other special structures, including manholes, septic tanks and wheel stops, readily available from A-M plants strategically located throughout the country.

Other examples of
PROGRESS IN
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AMERICAN-MARIETTA COMPANY
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GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

figures and names on the sepia sheets using proportional-spacing typewriters with acetate-carbon ribbon.

These maps are then copied on sepia-treated acetate film sheets and become the master maps for the county. Any number of these copies can be made quickly and inexpensively.

Superior Method

This method saves in time, energy and finance over the older style of record-keeping. Professional draftsmen conventionally would draw the maps, using India ink for blueprinting. Drafting by pencil is much faster, and the typewriter produces greater uniformity than hand-lettering and requires about half the time. Future changes in the maps can be made quickly and easily. We estimate that the use of the typewriter will save $48,000 just in the initial compilation of the new maps.

With the old-style maps, when a change must be made in the ink drawing, the draftsman must erase carefully and re-ink the drawing. The revised maps must be reproduced photographically and reduced to book-size duplicates. Each duplicate costs about $5. Under our new system, the changes can be made easily on the acetate film. Since the film sheets are already book-page size, direct copies can be made by the blueprint process at a cost of 5c per copy.

Use Heating Elements On Telemetering Relays

HEATING ELEMENTS of various types appear to be one practical way to keep telemetering systems in continued operation. This was one of the conclusions of the round-table discussion at the American Water Works Association meeting held recently at Schenectady, N. Y.

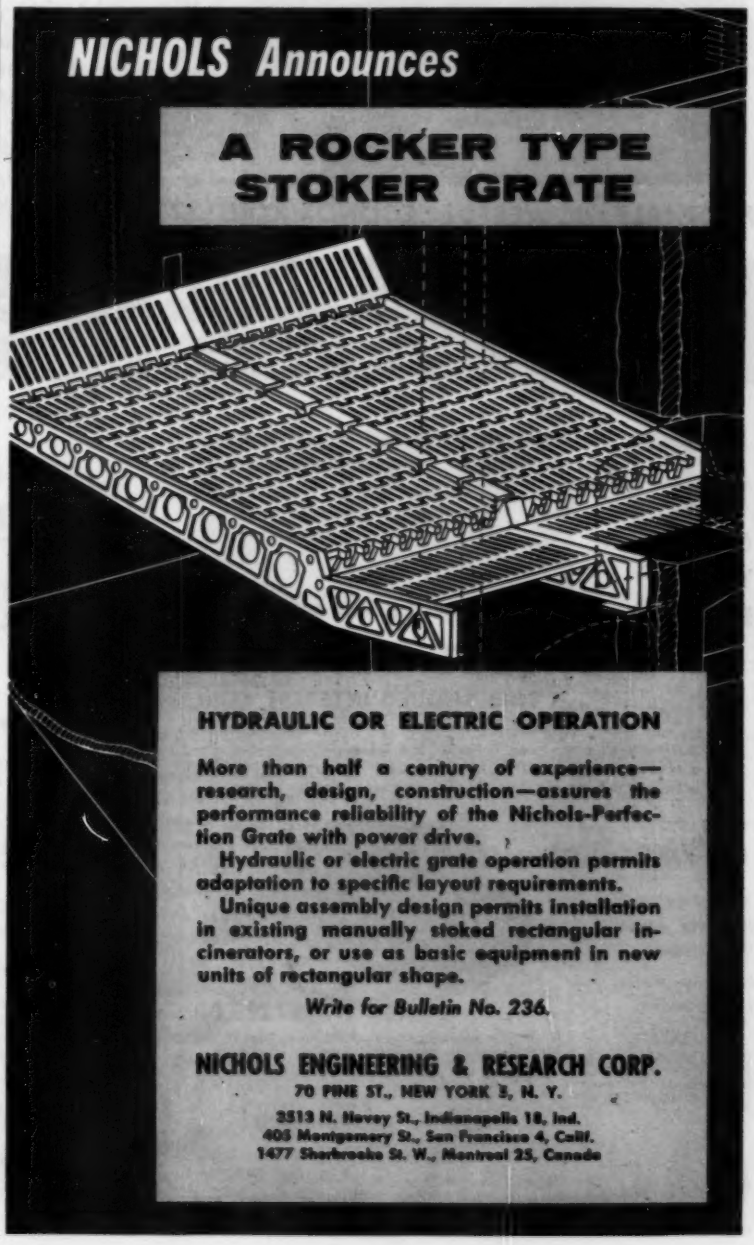
Nelson Fuller, superintendent of water, Batavia, N. Y., urged that the heating elements keep the relays above the dew point so that the humidity would not damage the delicate mechanisms.

Charles Rich, superintendent of water, Ithaca, N. Y., stated that he installed heat bulbs to keep the transmitters functioning properly. Of the somewhat more than 100 superintendents represented at the round table, about 20 used telemetering, but only one had a service contract. One reported that he transmitted data that both recorded pressure and operated valves on the same line.

Cities Cooperate in Air Pollution Study

RESEARCH and investigation of air pollution is under way in ***Sarnia, Ont.***, across the St. Clair River from ***Port Huron, Mich.*** In addition, the research group is studying the effects on local air pollution of heavy and light industry, transportation, river traffic, trains, automotive exhausts, downtown buildings, domestic incinerators and home heating.

The City of Port Huron has a city committee on pollution and works closely with the Sarnia groups. The State Board of Health of Michigan has agreed to make studies in this area and to work closely with both cities in studying the problem. The International Joint Committee which is concerned with pollution on the St. Clair River has been studying the air pollution from ships in the Detroit area and has now on their agenda air pollution in the Sarnia and Port Huron area.


NICHOLS Announces
A ROCKER TYPE STOKER GRATE
HYDRAULIC OR ELECTRIC OPERATION
More than half a century of experience—research, design, construction—assures the performance reliability of the Nichols-Perfection Grate with power drive.
Hydraulic or electric grate operation permits adaptation to specific layout requirements.
Unique assembly design permits installation in existing manually stoked rectangular incinerators, or use as basic equipment in new units of rectangular shape.
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RADIAL TYPE
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Operating a heavy, 90 lb. concrete breaker is a one-man operation when teamed with the Lindsay "Model 80" radial type air compressor. This compressor is ideal for departments operating with one or two-man crews. It is so balanced that it can be moved about by one man, and it can be towed at regular automobile speeds. Lindsay makes them from 55 c.f.m. to 125 c.f.m. capacity, and no compressor puts air to work more effectively or more economically.

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ONE OF YOUR PROBLEMS IS

INSECT CONTROL

. . . THIS SHOULD INTEREST YOU!

. . . an insecticidal fog generator that—
- Outsells all other types in Florida and Texas
- Is in regular use at U. S. Air Force Bases
- Weighs just 100 lbs., yet does work of much heavier machines.

Dyna-Fog

Simple to use . . .
Potently effective
Widely sold . . .

Dyna-Fog merits your *investigation.*

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EXTRA!
Our "Machine Loan" Program provides "sub" unit, should yours ever be out of action for servicing.

NOTE: Ask about our 19 lb. Dyna-Fog Jr. for that specific insecticidal fogging job.

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Augusta Country Club Golf Course—3 blocks
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OPEN ALL YEAR
Free Parking in Rear — Motor Entrance
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Write, wire or call for Reservations
Rodney S. Cohen, Jr., Manager
On the Hill overlooking Historic Augusta
One block long on Walton Way between Hickman and Meigs

Augusta, Georgia

Pros and Cons on a . . .

Pay-as-You-Drive Tax to Relieve Downtown Congestion

Experts comment on tax proposal designed to fill municipal coffers and stimulate transit improvement

A "tax" or charge on urban motorists aimed at reducing congestion on downtown streets has stirred a surprising amount of critical attention among specialists in municipal affairs. The tax, which is only being mentioned as a possibility at present, would be levied on both city residents and out-of-towners who travel by automobile in traffic-snarled central areas.

As now conceived, this "tax" would require that residents pay annual fees while out-of-town motorists would pay tolls to the city for the privilege of driving cars in downtown streets.

The possibility of such a tax developed (in conjunction with abundant fringe parking facilities) as one of the measures that could be utilized to cope with the ever increasing urban traffic congestion has been foreseen by Dr. Mabel Walker, Executive Director of the Tax Institute, Inc. The organization is a 25-year-old research organization, which attempts to focus attention on current problems of government finance.

Describing the proposed "urban motorist tax" in an article in the University of Pennsylvania Law Review, Miss Walker wrote last winter:*

> Such a tax would be of financial benefit to the city in three ways: (a) by inducing motorists to shift to the mass transit, it would reverse the falling patronage trends of the transit lines that have resulted in heavy subsidies by many cities; (b) by decreasing traffic congestion in the streets, the fiscal burden of coping with such congestion would be lessened; and further (c) it would provide a substantial amount of revenue to the central city, and like the payroll tax, it would extract a considerable portion of this revenue from nonresidents, who as commuters or contact population are benefiting from the city.

Miss Walker described the philosophy underlying the tax idea in this way:

> The rationale of the tax springs from the following considerations:
>
> 1. The urban motorist involves the city in heavy financial costs:
>   a. Because the provision and maintenance of city streets suitable for use by the modern motor car is an exceedingly costly enterprise;
>   b. Because the regulation of traffic and other expenses caused by the motor car also add substantially to the city budget; and
>   c. Because increasing use of private cars jeopardizes the solvency of mass transit operations and frequently involves the city in costly transit subsidies.
> 2. The use of a motor car in a city is a sharply rationed privilege and not a right, since the amount of street space is not adequate to accommodate all persons, resident and nonresident, who might want to drive in the city.

Miss Walker's rationale is also related to the emerging belief among government specialists that more and more municipal services should be paid for in part by charges and fees similar in many cities to those now applied to water supply, waste disposal, sewage treatment, the use of certain recreational facilities, etc.

Luther Gulick, President of the Institute of Public Administration in New York City, lists these advantages of this policy:*

> First, consumption will be limited in proportion to need as measured by effective demand. This will prevent great waste. Second, the amount used and paid for is an excellent method of determining what and how much the public really wants. This is much better than a budget hearing for deciding how important some service is in comparison with another. With each dime spent the public is voting its approval of a given service, on the basis of the comparative value of the service to the consumer at the time. Is 2 cents per mile of fast freeway travel worth it to the trucker and motorist? Don't try to decide by a Congressional hearing. Let the tolls collected give the answer day by day. What could be more democratic than this?

To get a balance of views on this tax proposal, the Editors of THE AMERICAN CITY recently asked a group of specialists in urban affairs to comment on Miss Walker's article. Represented here are the opinions of four men well-experienced in a variety of disciplines:

William C. Wheaton, Director, Institute for Urban Studies, University of Pennsylvania:*

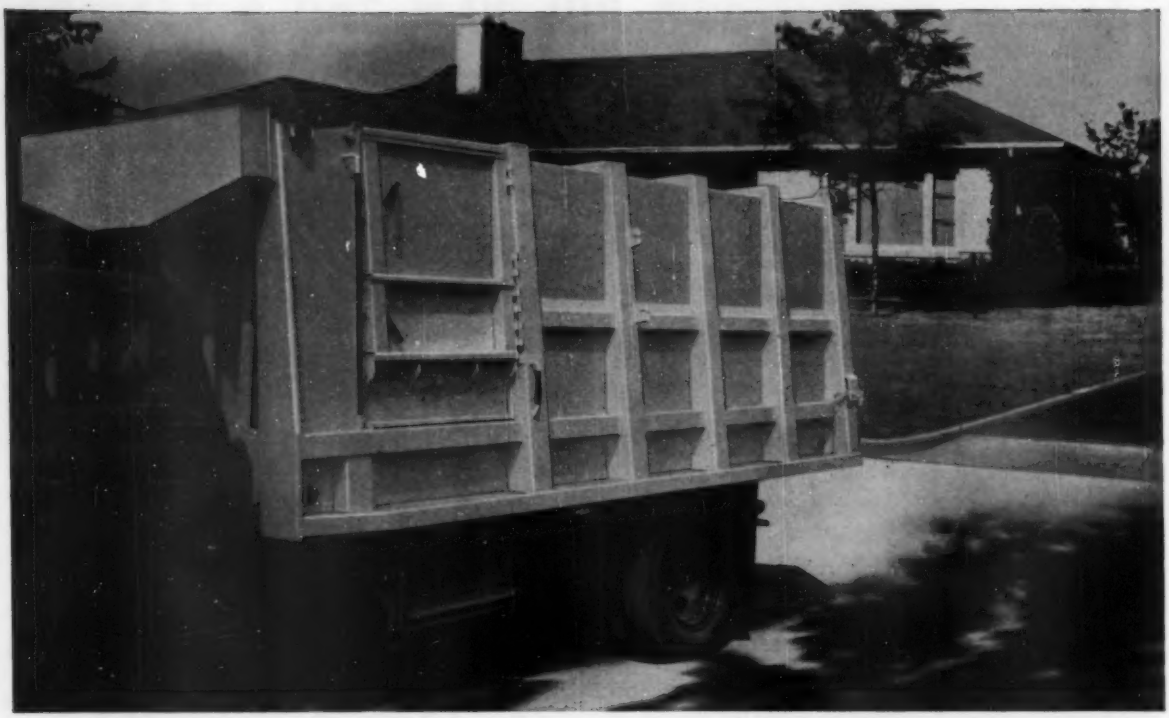
Older central cities were developed at a time when mass transit was the predominant method of travel. Consequently, they achieved and still maintain densities which cannot be

served by automobile. In New York toll of 10 to 20 cents coupled with $5,000,000 to $50,000,000 per mile.

* "Fiscal Aspects of Metropolitan Regional Development," by Mabel Walker, University of Pennsylvania Law Review, Philadelphia, Pa. Vol. 105, No. 4, Feb. 1957.

* Growth and the Problems of Government in the Metropolitan Areas of the U.S.A.; Changing Problems and Lines of Attack. By Luther Gulick. Governmental Affairs Institute, Washington D. C. 1957.

** Mr. Wheaton formerly served as financial consultant to the Philadelphia Urban Traffic and Transportation Board.



Hydro E-Z Packs cost less to buy, operate, maintain...

Compact Shape uses space to best advantage, permits mounting on smaller trucks, cuts initial cost to a minimum.

Faster Collection and fewer trips to the dump cut man-hours, reduce truck operating costs because load is packed en route.

Simplified Design and accessibility mean lower maintenance costs.

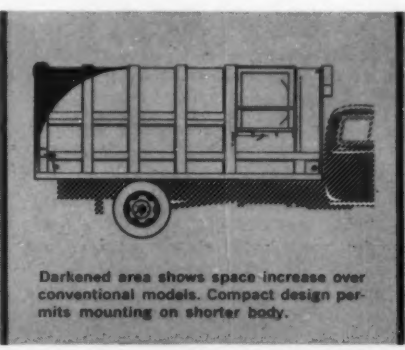
Less Maintenance means less strain on parts because hydraulics do not have to operate continuously resulting in less servicing of truck engine and transmission.

LOOK AT THESE FEATURES:

- Greater Capacity
- Large Openings on both sides and top
- Powerful Compaction
- No-Drip Body
- Simplified Hydraulic System
- Fully Enclosed Load

HYDRO E-Z PACK—THE MODERN DISPOSAL METHOD—*Write Today for Full Details*

Hydro E-Z Pack easily handles bulky objects like this washing machine—compaction method applies up to 76,800 lbs. at 1350 psi of crushing force.



Darkened area shows space increase over conventional models. Compact design permits mounting on shorter body.

Release tailgate, engage the packer—load dumps quickly, completely, safely.

HYDRO E-Z PACK

HYDRO E-Z PACK DIVISION—HERCULES GALION PRODUCTS, INC., GALION, OHIO

EZ-258

choice between continued congestion

served by automobile. In New York City, three-quarters of all peak-hour travelers to lower Manhattan arrive by transit and only one-quarter arrive by car. In Philadelphia, two-thirds of the peak-hour travel to the central business districts is by transit. It is quite clear that many of those who now use transit facilities would be happy to switch to automobiles. The only limiting factor on further increases in automobile driving to these central business districts is continued congestion. As new urban expressways are built they will attract new drivers from transit and they in turn will be as congested as present streets.

If we continue to build expressways into central business districts the space required by these expressways, their discharge ramps, and the parking facilities needed to accommodate the resulting cars will eliminate large parts of those districts. The only alternative to such a destruction of central business districts is the maintenance of a high volume of use of mass transit facilities which alone can discharge large numbers of people in very small spaces. Our largest cities face this choice. They might as well face it rationally.

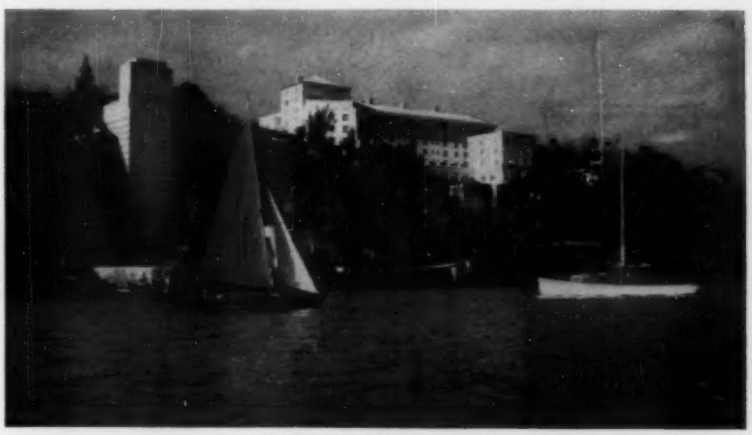
If our major cities are really interested in maintaining central business districts they must limit the amount of automobile travel into those districts. Only two devices are available to prevent perpetual expressway congestion in peak hours in central cities. One of these is some form of rationing; the other is the use of price mechanisms. Presumably it would be administratively and politically impossible to hand out rationing permits which would authorize some people to drive to central business districts and which would prohibit others from driving.

The price mechanism appears to be the only feasible alternative.

What evidence we have suggests that increases in tolls on the few expressways having tolls and leading into central business districts have not produced significant declines in riding volume. Thus moderate tolls on expressways leading into crowded central business districts would produce very large revenues before they began to have a deterrent effect. Such revenues could be used to provide the very large capital investments necessary to make mass transit fast and pleasant. They might produce large enough revenues to make mass transit truly competitive with the automobile for centrally destined riders. Some preliminary calculations for Philadelphia suggest that a barrier toll of 10 to 20 cents coupled with cost-of-service-parking-charges might produce this effect.

Toll charges for centrally destined expressways are entirely justified on the basis of cost of service to the automobile driver. While the highway-user taxes paid by drivers are more than adequate to pay the cost of suburban and rural freeways built at a cost of $1,000,000 to $3,000,000 per mile, these highway-user taxes fall far short of paying the cost of expressways in centrally developed areas where the costs range from $5,000,000 to $50,000,000 per mile. In short, the highway user does not pay the marginal cost of providing new central city expressways. To the extent that such expressways are being built with highway-user taxes they are being built at the expense of suburban and rural drivers and for the benefit of central city drivers. Thus equity alone would justify toll charges in central cities.

Unless price mechanisms are used to levy an equitable cost of service tax on automobile drivers in central cities, older central cities face a



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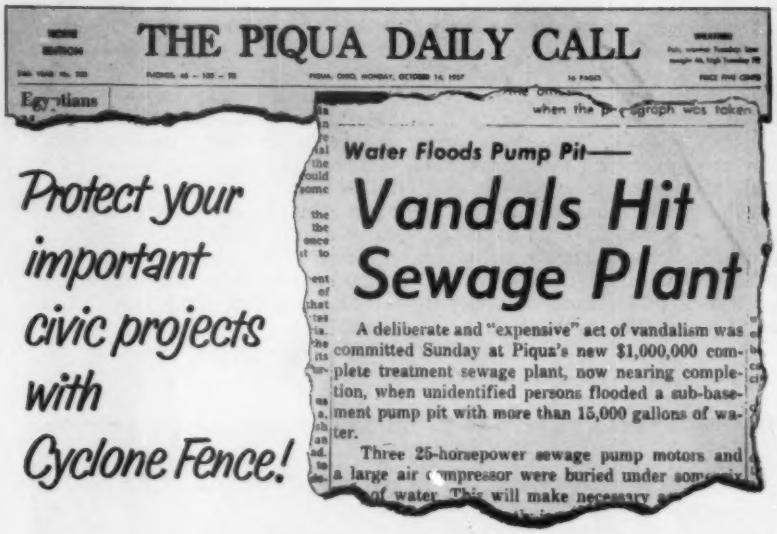
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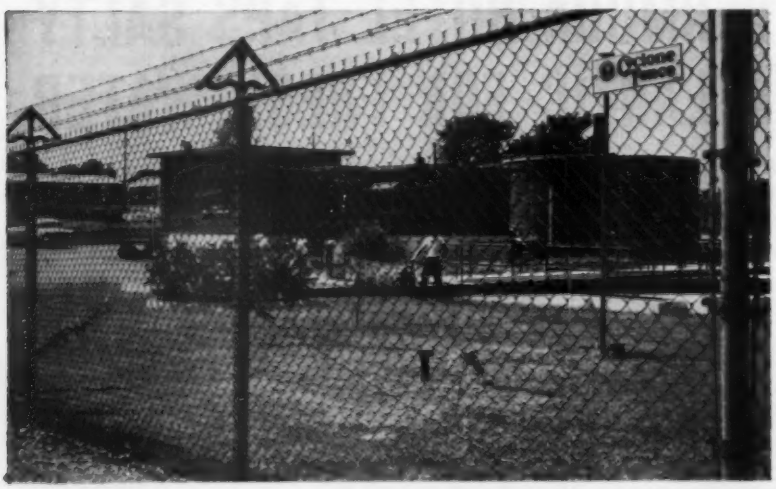

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choice between continued congestion or ultimate removal of large portions of their present economic functions.

Alan M. Voorhees, Traffic Planning Engineer, Automotive Safety Foundation:*

A tax program such as that suggested seems to put the cart before the horse, for it assumes that the only way to solve the mounting traffic problem is to force people to use mass transit through a rigid taxation program.

This may be one approach, but certainly a city should first evaluate the best alternatives in terms of benefits to the community and economic feasibility. Then a financial program can be logically devised.

Forcing people back on the existing transit facilities seems to me to be setting back the clock. If we are going to meet the transportation problem we must aim for better transportation devised to better serve the community. New high-speed rail facilities in some of our larger cities may be necessary. However, even in these cities, as was pointed out in the October 1957 issue of *Fortune*, such improvements may be more costly than the development of a sound freeway system. The proposed transit system for the San Francisco area would cost about 6 cents per passenger mile to build and operate. Urban freeway systems are now being built at highway users' expense at about 1 cent per passenger mile. The rate for serving the downtown area in most cases is only slightly higher. Even if the cost of operating a car on such a basis were added to this figure, the total need not exceed that of the San Francisco proposal. The logical transportation plan for each community is bound to differ and so should the financial program.

The taxation proposal suggested by Miss Walker should also be considered in the light of the effect that it will have on investment policy. Recent studies by the Highway Research Board have shown that transportation access has measurable impact on land values and investment policy. Such a tax would undoubtedly accelerate further suburban expansion in both retailing and commercial activities. It seems that such a scheme would, in effect, penalize

* Mr. Voorhees is a city planner, a graduate of Yale University Institute of Traffic Studies and co-author, with Gordon B. Sharpe and J. T. Stegmaier, of *Shopping Habits and Travel Patterns*, Technical Bulletin No. 24, Urban Land Institute, March 1955.

the development of the downtown area.

Walter Blucher, Consultant, American Society of Planning Officials:*

While I believe that the well-being of *some* cities is dependent almost entirely on automobile transportation and the provision of adequate off-street parking (primarily small communities that serve as commercial centers for surrounding rural areas), But *in large cities*, there is an absolute need for the provision of really effective mass transit and for channeling more people to such transit. The future of a number of our downtown areas depends on the provision of effective mass transportation which in the largest cities will consist of rail facilities. Persons owning downtown property had better consider this matter seriously and find means of providing the subsidy necessary.

Roger A. Freeman, Vice President, Institute for Social Science Research:

I agree with the tax on the urban motorist. If he insists on using communication lines (city streets) for storage purposes then he should at least pay an adequate fee for it. Sometimes I wonder whether New York City could not solve its revenue problems simply by enforcing its traffic regulations and collecting parking fines from all violators (or issue high-priced permits as "space-rentals)."

* Mr. Blucher is the immediate past-president at the American Institute of Planners and is now serving as a consultant on mass transit for the Toronto Metropolitan Area Planning Board.

We Have Solved Our Street Patching Problem

(Continued from page 149)

Wylie Heat-A-Mix pugmill will complete the mixing job. We figure that our cost per ton mixed is about $4.25.

In laying the patch, the tailgate mixer does the heating and final mixing which makes it easy for our three-man patching crew to handle. First, we load our truck with cold mix using our tractor highloader. Second, we drive our loaded truck from our mixing strip to the Heat-A-Mix and hook it on the tailgate. Third, we light the burner, start the engine, and we are ready to do business.

Our three-man crew can put down between 8 and 10 tons of hot patching material in a day's operation. One man is stationed in the truck to charge the machine. While the four-cubic-foot batch is being heated, an extra batch is being prepared in the preheating hopper. It takes approximately 2 to 3 minutes to heat the material to the desired temperature, normally to between 170° and 250°. The man on the pavement can either drop the hot mix in the hole from the mixer or he can shovel from the catch pan. The patch is then compacted either with truck tires, or roller. On the smaller patches, we let the traffic do it.

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Top: Cyclotron wall is in a hallway, space is very restricted. Note cores in foreground. *Bottom:* Making big hole by over-lapping small holes cut diamond bit cost 50%.

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The strategy behind the campaign for . . .

Miami's New Metropolitan Charter

By HAINES COLBERT*

FLORIDA voters always have been disinclined to risk spoiling the state's big infant, Miami, by giving in too readily to its wishes. Yet they handed home rule to Dade County, of which Miami is the population center and seat of government.

Miamians are notoriously apathetic about special elections, particularly those in which no personalities are involved, and there is no record of any such election having been held by the county until recently.

But enough residents of the city and county voted in a special election to establish a Metropolitan Government for the area in spite of the determined opposition of some officeholders.

The double victory on the first try for home rule—in a state referendum on the constitutional amendment authorizing the new form of government, and in the local election which put it into effect—is believed to be unprecedented.

It was made possible by a public relations campaign, much of which was waged under the handicap that its authors, because they were financed by the state, were forbidden to advocate the plan.

The success of the ticklish campaign has prompted leaders in many other communities to look to Miami for pointers in solving their own metropolitan problems, especially since the mortality rate on amendment and charter campaigns seems so high. Latest important charter fight to fail was the St. Louis revision effort, which went down to defeat by 35,000 votes August 1957.

Sponsors of Metropolitan Government for Dade County had the advantage of unanimous support in the press, both in their own area and throughout the state.

The two local dailies, *The Miami Herald* and *The Miami Daily News*, did not need to be convinced. But the task of winning support from the remainder of the editors in the state was vital to the success of the program.

Upstate voters who neither knew nor cared about Miami's problems had to be persuaded to vote on a complicated matter of government. Many of those who were interested

* Mr. Colbert is a staff writer on *The Miami Daily News*, who has covered many aspects of the Miami amendment and charter campaign and tells the inside story from first-hand knowledge.

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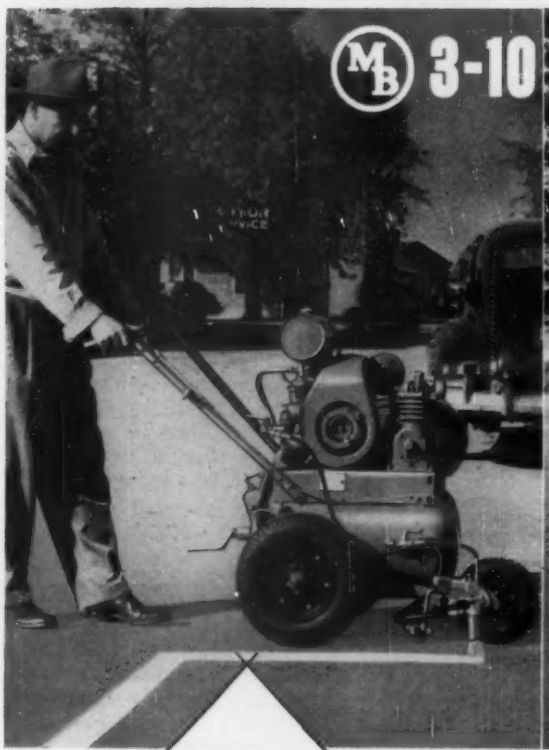

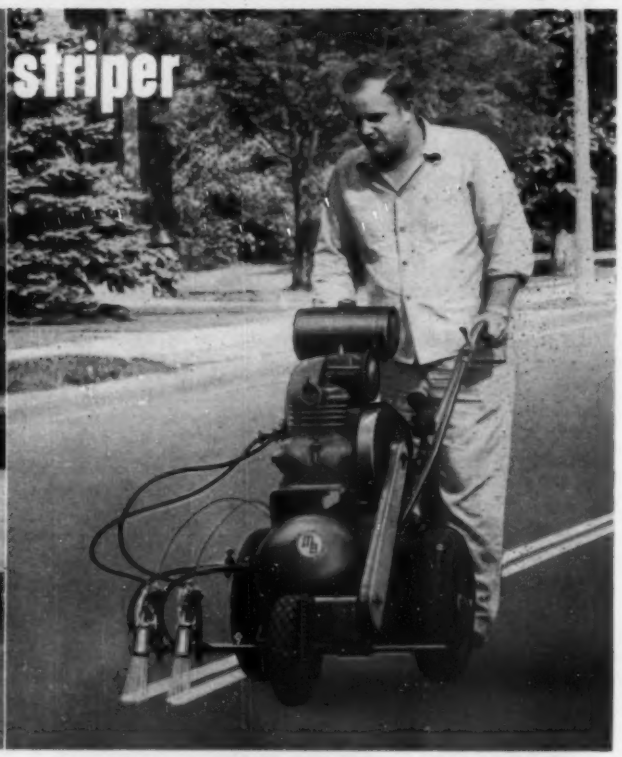

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were doubtful about loosening state control over the area which produces a major part of state revenue. And the inevitable big city-little city and north-south jealousies were involved.

Two Miami public relations men were handed the problem of selling Dade County home rule there and throughout the remainder of the state.

Bob Daly of Savannah, Ga., a former newspaperman who turned from nightclub to political publicity, was the first on the scene. He was retained early in the home rule fight by the Three M—Metropolitan Miami Municipal—Board, when it was established by the Miami City Commission to explore the possibility of Metropolitan Government in 1954.

Franklin J. Fox of Newark, Ohio, a former Associated Press executive, represented the Charter Board—the agency created by the State Legislature to draw up the specific form under which Metropolitan Government, if it was approved, would operate.

What Happened in Miami Was This

In a period of about 30 years, the population of the area had leaped from some 43,000 to more than 700,000.

Miami proper found itself ringed with 25 other communities, many of which were booming faster than the city.

The county government was at least trying to cope with the problems which kept mushrooming, while the Miami City Commission had fallen into a period of pointless bickering.

Miamians picked up their newspapers one day in 1953 and read that their city was about to be abolished. The four Dade legislators had agreed to joint sponsorship of a local bill—certain of passage under the Florida legislative system—which would simply eliminate the city government and turn its functions over to the county.

Advance publicity caused a split among the legislators from the county, and the measure was passed only after a provision for a referendum had been attached to it. The abolition move, in the city election which followed, was defeated by just 980 votes.

City officials, in fighting against the proposal, promised to investigate the deficiencies of the local government if they were retained in office. True to their word, they financed a study by the University of Miami, which retained the Public Administration Service of Chicago to make the survey.

The City Commission at the same time named a group of prominent citizens to carry out such of the Public Administration Service's and their own recommendations as they saw fit. This was the Three M Board.

The Legislature soon after that created the Charter Board.

Bob Daly and Franklin Fox, working for different agencies but with a common problem, joined forces and remained together throughout the state and local campaigns. They thus became the first public relations men to carry such a program through from beginning to end.

One of their first steps, which they now believe was decisive, was to persuade the chief editorial writers of the two Miami papers to tour the state together on behalf of Metropolitan Government.

John D. Pennekamp, associate editor of *The Miami Herald*, and Thomas Hagan, then editor of *The Miami Daily News*, visited the editor of every other daily in the state during August and September of last

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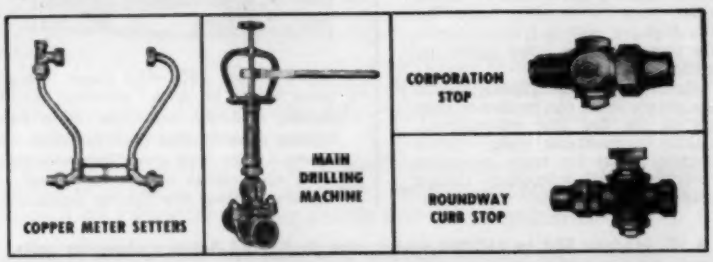

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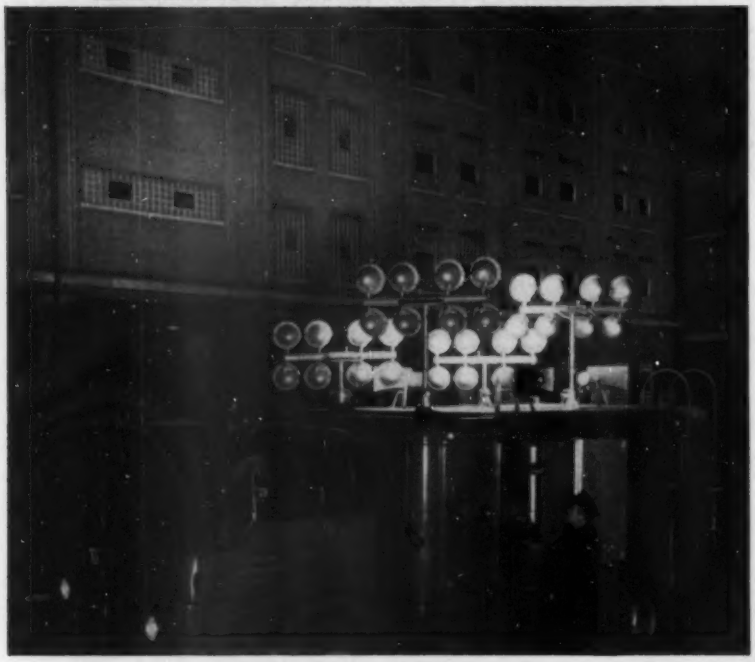

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Onan also builds lightweight electric plants which can be carried right up to the fire site; rig-mounted, quickly-demountable units; mobile electric plants for truck or trailer mounting; and emergency electric plants for standby use.

Onan Model 25EC-4R8 shown through open doors of truck, provides ample power, is easily accessible. Note how lighting superstructure folds flat when not in use. Lamps face down for protection. Truck also carries electric tools, reel of cable and other fire fighting equipment.

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year. They pointed out that the other communities eventually would be facing the same problems as confronted Dade County, and would need the help of the huge south Florida voting population.

The Miami editors took with them kits containing suggested editorials and news stories.

As a result of the tour by Editors Pennekamp and Hagan every daily newspaper in the state gave its editorial support to the move.

Bob Daly and Franklin Fox, meanwhile, produced a 15-minute motion picture for television in which popular Governor LeRoy Collins endorsed home rule, prepared spot radio announcements for more than 80 stations, and kept news releases flowing to dailies and weeklies.

The public relations men stressed the idea that opposition, if it materialized, would come from officeholders interested in hanging onto their jobs. Some such officeholders later admitted that they refrained from attacking the program only because they felt the label of selfishness was ready and waiting for them.

In the general election of November 1956, the constitutional amendment authorizing home rule for Dade County was approved by a two-to-one margin in the state, and by a three-to-one vote in the county.

More Problems

Both Mr. Daly and Mr. Fox were retained by the Charter Board, now functioning under appointment by the governor, for the campaign leading up to the local election—and State Attorney General Richard W. Ervin ruled that they could not legally argue for home rule. Since the public relations men were in effect on the state payroll, Attorney Ervin said, they could only *explain* the program to the voters, without asking them to vote for it.

And there were these additional problems:

1. Until the Charter Board completed its work, there was no charter to explain;
2. Civic groups which had worked hard in the state campaign felt the battle was won and relaxed their efforts;
3. Civil service employees who had waited to see how the state election would turn out now prepared for a tooth-and-nail fight against the home rule charter, which they feared might jeopardize their jobs.

The election date was May 21, 1957. The first draft of the charter was completed March 12, and the final draft — prepared after a series of

public hearings—was turned over to the clerk of the county court April 15.

Bob Daly and Franklin Fox feared public apathy almost as much as the opposition of the officeholders. The charter was a detailed legal document which only a lawyer really could interpret, and it seemed unlikely that many persons would bother to vote in the special election, in which there were only two other issues—both school matters of minor importance.

A small point in favor of the charter was that approval of the school changes was a foregone conclusion—which the public relations men felt at least would produce an affirmative atmosphere at the polls.

Some of the Charter Board members at one point had suggested incorporating a provision changing the name of the county to Miami. Mr. Daly and Mr. Fox, knowing the unnecessary uproar that would produce among old settlers, talked the members out of looking for trouble.

Charter Debate

Both sides made the debate as simple as possible. The opponents argued that the new form of government would mean higher taxes and urged, "Vote No." The charter advocates pointed to the manner in which it could improve zoning, law enforcement, and highway building, and urged, "Vote!"

The newspapers printed the complete text of the charter, and thousands of copies of it were distributed in booklet form; some 8,500 of them went to school children for civics studies. Mr. Daly and Mr. Fox worked closely with the newspapermen covering the preliminaries to the debate and, as acknowledged experts on the subject, were able to act more or less as interpreters for the reporters.

The opposition asked, "What's the hurry?" The Charter Board press headquarters came back with simple cartoons depicting instances—an armed holdup on the county line, traffic jams and flooded streets—where, as the caption read, prompt action was needed.

Advocates of the charter deliberately kept out of arguments with the opponents, but a telling blow was struck when they finally agreed to a television debate. Franklin Fox spent more than 80 hours briefing the two home rule debaters for the half-hour show and wrote the introduction, in which he pictured the charter as the latest in a series of historic documents dating back to Magna Charta.

The debate made a strong impression, but as the election neared, it was felt that something further was needed to dramatize the issue.

A law enforcement official helpfully provided what was wanted by suggesting to the county commission that the cost of safeguarding the polls be reduced by deputizing election workers and dispensing with the regular quota of deputies. Mr. Fox and Mr. Daly dug up the fact that such a procedure was illegal, and there was lively newspaper debate on election eve over whether an attempt might be made to steal the contest.

As it turned out, the election was unusually clean, and Metropolitan Government won by a vote of 44,404 to 42,620, with 26% of the registered voters in the county participating. The real problem, as Franklin Fox and Bob Daly had foreseen, was to get out enough of the vote to offset the predictable strength of the opposition.

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editor, is quite familiar with this program. In fact he has called our attention to one or two slips in the *Journal of AWWA*.

It occurs to me that a professional worker in any line of endeavor knows how to dress for the job, and also knows how to avoid risks and hazards. When I see men in trenches not adequately dressed and not wearing equipment that adequately protects them, I can reach only one conclusion: that amateurism prevails and that someone in the higher echelon is not cognizant of reasonable safety precautions or perhaps not too interested in taking reasonable precautions to protect his greatest asset —the workers.

Unfortunately, it is a big job to put safety over in our industry. But I think it can be done—particularly if all of us work toward that end.

RAYMOND J. FAUST
Executive Assistant Secretary
American Water Works Association, Inc.
New York, N. Y.

EDITOR'S NOTE: At least no one was standing *under* the boom or dangerously close to a section of the suspended pipe.

Milwaukee's Urban Renewal Tools

I have enjoyed reading your April, 1958 issue of THE AMERICAN CITY and particularly the editorial therein which includes a quotation from my letter to the *Journal of Housing* as published in its October, 1957 issue ("Slums Need a 'Weed Control' Ordinance," p. 5.)

For many years Milwaukee has had an active policy of razing unsafe buildings. In 1957, a total of 601 structures were razed through condemnation. In the first quarter of 1958, 124 substandard structures have been destroyed. At the same time, we have expanded enforcement of our housing code. This ordinance is enforced by our Health Department and substantial results have been obtained from enforcement activities.

However, enforcement of either razing statutes or housing code ordinances can never supplement a complete urban renewal program. We regard these procedures as part of the kit of tools necessary for urban renewal. We know that as structures age and areas deteriorate they are usually below the level where just enforcement of the housing code or razing unsafe structures can rid areas of blight and slums. For such areas we believe that slum clearance and redevelopment are absolute necessities.

We are proud of the work that has been done by the use of these two tools (razing of unsafe buildings and housing code enforcement) in Milwaukee but we do not wish to leave the impression that we regard these two tools as the only tools necessary to eradicate blight and slums.

FRANK P. ZEIDLER, *Mayor*
Milwaukee, Wis.

Homes Instead of "Projects"

It is gratifying to learn that the federal government is at last concerning itself with homes instead of projects. The article by Charles E. Slusser in the April issue of THE AMERICAN CITY (see "Homelike Public Housing," p. 171) described a method similar to what I suggested four years ago for Bakersfield, Calif. At that time, representatives of the federal housing agencies told me it couldn't be done. They wanted to wipe out the entire area; redesign the street plan; put in new utilities in place of existing ones; and build a new "project"—in other words, spend a lot of money.

If this plan had been approved by the federal government at that time, many shacks and substandard dwellings might have been replaced long ago.

EVERETT B. MANSUR
Planning Consultant
San Gabriel, Calif.

St. Clair Shores' New Town Building

A new municipal building in St. Clair Shores, Mich. (population 19,823) has some novel features that seem to have proven sound.

To reduce traffic through the building, the most active offices have been placed at entrances. The council chamber, whch handles 100 to 300 each Monday night and also doubles as a court room, can be segregated from the remainder of the building so that there is no traffic through the building on council meeting nights.

The cashier's office has a drive-in window, which is not only a convenience but was installed with an

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WALTER X. BRENNAN
Grosse Pointe Park, Mich.

Air Pollution Problems Get Special Play

I was delighted to see in the May issue of THE AMERICAN CITY that you are going to set up a special section devoted to air pollution control.

If I may be so bold, I would certainly suggest that you include incinerators under air pollution. I think I have told you before that I consider proper refuse disposal by incineration the No. 1 national problem. Perhaps we might include in this category the incineration of automobiles.

You have always been so forthright on all these subjects that I am looking forward to your special section in the future.

T. C. WURTS, *Director*
Bureau of Smoke Control
County of Allegheny
Pittsburgh, Pa.

Selecting Consulting Engineers

I have been instructed to write to you to express, on behalf of ASCE, commendation for the strong stand you have maintained in opposition to the practice of competitive price bidding for engaging professional engineering services. It is a pleasure to do so.

As I am sure you know, ASCE is active in combatting this fallacious and unethical procedure. Our experience indicates that progress is being made. Much remains to be done, however, and the influence of THE AMERICAN CITY can be of high value.

I have in mind particularly the editorial in your issue of February 1957 ("Consulting Engineers — How to Select Them"). It was one of the best statements I ever have seen on the subject.

WILLIAM H. WISELY
Executive Secretary
American Society of Civil Engineers
New York, N. Y.

EDITOR'S NOTE: THE AMERICAN CITY is glad to send copies of this editorial upon request.

Edited by NORMAN WILLIAMS, JR.

Zoning & Planning Notes

Residential Density—Rezoning

MARYLAND. *Fuller* v. *County Commissioners of Baltimore County*, 133 Atlantic (2d) 397 (Court of Appeals (highest court), June 26, 1957).
MARYLAND. *Board of County Commissioners of Talbot County* v. *Troxell*, 132 Atlantic (2d) 845 (Court of Appeals (highest court), June 25, 1957).

In the *Fuller* case, in the course of a general rezoning study, the Planning Commission first concluded that a high-density area on the east side of the Harrisburg Expressway should stop at the Expressway, but later decided that certain land on the west side should also be zoned for higher density. When recommendations for higher density were approved and enacted, neighboring land-owners challenged such rezoning on the ground that the small pieces of higher-density land on the west side of the Harrisburg Expressway would necessarily involve spot zoning. Other non-residential establishments were located in the area east of the Expressway.

In the opinion, the Court upheld the proposed higher density rezoning, on several grounds. First, the Court noted that the land in question was low-lying, with a tendency to be swampy, and that it was the only area nearby for which municipal sewer and water connections were available; and it was indicated that both of these considerations militated against a low-density development. Moreover, there was no evidence that the increased density would create any traffic hazards. One witness, referred to as "a zoning expert," had also testified that

> ". . . the historical pattern of zoning was to have a high density zone next to an industrial zone; that if the entire area in question had been zoned R-6 it would not be spot zoning; that if water and sewerage facilities were only available to Emerald Acres plus an additional small amount of acreage west of the Expressway, he would not characterize the action of the County as spot zoning."

Since the evidence showed some basis for a different classification for the area in question, the Court upheld the rezoning.

In the *Troxell* case, an area along the waterfront, on the eastern shore of Maryland, was zoned in a comprehensive zoning ordinance for a waterfront district, with a minimum lot size of two acres. Three years later, the owners applied for a rezoning of the non-waterfront tracts to a suburban district, which permitted development with lots of from 7,500 to 10,000 square feet. The County Commissioners approved this proposal, on the ground that the tract had originally been improperly zoned. The Court refused to approve the rezoning.

In the opinion, the Court noted that there was no change of circumstances from those involved in the original zoning, and emphasized that plenty of other land was available for development at the higher level of density.

> "It was clearly brought out that there was an abundance of building sites available in suburban classifications, and no demonstrated need for a rezoning of the tract in question, although such action would enhance the value of the tract to the applicants."

In view of this, the Court proceeded to restate the presumption, appearing in several recent Maryland cases, that an original zoning is assumed to be valid, and that a rezoning can thus only be justified on the basis of changed facts.

> "In these and many other cases we have stated the proposition that there is a presumption that the zones established by an original zoning ordinance were well planned and arranged and intended to be permanent. The burden of proof is upon the proponents of the change. The appellants argue that no particular study was made of the tract in question and that its original zoning was 'perfunctory'. We think, however, that the evidence shows no more than a change of mind on the part of the Planning Commission and County Commissioners. It was shown that a careful study was made at that time, and that at the public hearing on the original zoning a considerable group of nearby residents had urged that the minimum lot size should be fixed at 5 acres instead of 2. The appellants attended this meeting but made no protest against the action taken."

However, later in the opinion, the Court restated this rule somewhat differently, to the effect that such a change should be undertaken only as part of a comprehensive rezoning, and not piecemeal.

> "We have indicated in several cases that reclassifications or special exceptions representing a departure from the comprehensive plan should not be made on a piecemeal basis, but as the result of a general survey. There also seems to be little dispute in the case that due to the character of the soil, sewage effluents could not be properly disposed of if the property were fully built on to the limit permitted by the rezoning. This would present a serious menace to health and cause pollution in the waters of the two creeks. The evidence on this point is clear and certainly furnishes no support for the action taken.'

Quite apart from the merits of the specific controversies involved, these two cases raise several interesting points. First, the "zoning expert" who testified in the *Fuller* case undoubtedly came right out with a frequent tendency in zoning practice, i.e., putting higher-density residential zoning in the vicinity of an industrial area. While such a practice is not uncommon, and does conform to certain assumptions in current real estate development, it raises very serious questions from the viewpoint of the public welfare. The whole point of residential zoning is to enable people to live in areas apart from industrial nuisances; and it is certainly an odd practice to arrange things so that, the closer you come to an industrial nuisance, the more people should be exposed to it. Such a practice can hardly commend itself to the people who are exposed to the nuisance, or to their children whose very lives might well be endangered by the heavy traffic normally generated by industrial areas.

As for the *Troxell* case, the presumption as stated may have something to be said for it in the circumstances of this case, but may also be an unmitigated bother in the general advance of zoning. A frequent situation—one is almost tempted to say the normal situation—is that the first zoning ordinance in any community will impose rather mild restrictions, in order to get passed; and once the benefits of zoing are evident in practice, a wise public policy will move to tighten it up as soon as possible.

Home Occupations—Teaching Ceramics

NEW YORK. *Schweizer* v. *Board of Zoning Appeals of the Incorporated Village of Garden City*, 167 New York Supplement (2d) 764 (Supreme (lower) Court, September 23, 1957).

In this case the occupants of a single-family dwelling conducted classes in ceramics in their basement—for somewhat over a dozen children in the afternoon, 4 days a week, and for approximately the same number of adults, 3 evenings a week. No charge was made for attendance at these classes, except to cover the cost of materials used. The zoning ordinance had the usual provision authorizing, as home occupations, the offices and studios of various professional people, including artists; but a school was not permitted in the appropriate residence district.

In the opinion, the Court held that the activity here involved a school, and not merely a group of artists sharing their enthusiasms on a non-profit basis, and so was not a permitted home occupation.

> "A zoning ordinance which is concerned with maintaining the quiet, uncrowded, atmosphere expected in a residential district may not be held unreasonable because it requires the applicant for the conduct of such classes to satisfy the Board of Appeals that such use will not be detrimental to the neighborhood or to the residents thereof; or that the use will not create a hazard to health, safety, morals, or the general welfare."

Fraternity in Single-Family District

NEW YORK. *City of Schenectady* v. *Alumni Association of Union Chapter, Delta Chi Fraternity*, 168 N. Y. Supplement (2d) 754 (Appellate Division (intermediate court), December 19, 1957).

In this case a fraternity chapter in Union College purchased a vacant house in a single-family district, subject to a condition that the ordinance could be changed to permit its use as a fraternity house. The zoning ordinance expressly permitted fraternities in multiple dwelling districts. When attempts to have the zoning changed were unsuccessful, the fraternity argued that it represented a "single family," with 23 resident members.

The Court held that, despite previous New York cases to the contrary, a fraternity did not represent a single family.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS—Charles S. Rhyne, General Counsel

Annexation—Burdens Must Be Accompanied by Some Benefit—Prior Voids Subsequent

In proceeding to contest annexation of urban area, held, annexation proceeding initiated first voids subsequent, increase and reduction of boundaries is strictly legislative function, city must exist substantial time to justify annexation and annexation should contribute to prosperity of city and not cause "manifest injury" to owners of realty in annexed area by imposing taxes without corresponding benefits of some degree and nature. *City of Louisville* v. *Kraft*, 297 S.W.2d 39 (Ky., Oct. 19, 1956)

Boards—Hearing by Panel and Submission of Report To

In action to review valuation of property for tax purposes, held, statute providing for panel method of hearing tax appeals whereby two men hear case and submit findings to whole board is not violative of due process clauses of Federal and State Constitutions. *Fifth Street Pier Corp.* v. *City of Hoboken*, 126 A.2d 6 (N. J., Oct. 22, 1956)

City Employees—Reduction of Work Week Sustained—Delay Of Five Years Bars Attack

In action by per diem employees to recover wages lost during last five years when work was reduced from six to five days, held, failure to pursue legal remedy of mandamus to prevent employment of provisional employees on sixth day for five years barred recovery of wages lost. *Kunz* v. *City of New York*, 166 N.Y.S.2d 76 (N.Y., July 3, 1957)

City Hall Held Governmental Function

In action by woman who slipped on overpolished floor after entering city hall to obtain water connection for her house, held, operation of city hall, no part of which was maintained solely for use and benefit of any particular department, was governmental function. *Cox* v. *City of Cushing*, 309 P.2d 1079 (Okla., Apr. 16, 1957)

City Property—Sale by Competitive Bidding Ruled Defective

In action by highest bidder at sale of municipal property no longer needed for public purpose to compel conveyance of title, held, under statute borough could not set both minimum price and reserve right to reject any and all bids so that sale under such conditions was void. *Smith* v. *Borough of Northvale*, 128 A.2d 511 (N.J. Super. Ct., Jan. 9, 1957)

Civil Service—Exam May Be Given Before Vacancy Exists

In action for declaratory judgment to invalidate civil service examination for police captain, held, City of Yonkers Civil Service Commission was not required to wait until vacancy existed before holding promotional examination. *McCarthy* v. *Carey*, 166 N.Y.S. 2d 265 (N.Y. Sup. Ct., Westchester Cty., July 9, 1957)

Dedication—Use of Road For Water Pipes Valid

In action to enjoin laying of water pipes in dedicated street, held that county as dedicatee of road could approve municipality's laying of water lines since land dedicated for street use may be used for many purposes other than that of travel. *Franklin* v. *Bd. of Light and Water Works*, 95 S.E.2d 685 (Ga., Dec. 5, 1956)

Electrical Code—Electrical Engineer Requirement Invalid

In action for declaratory judgment to invalidate regulation requiring application for permit for proposed electrical installations in which current carrying capacity exceeded 200 amperes or electrical potential exceeded 240 volts to be accompanied by plans prepared by licensed electrical engineer, held, regulation bears no relation to public health, safety and welfare, results in discrimination against electrical trade, and increases costs for no lawful reason. *Electrical Contractors Ass'n. of the District of Columbia* v. *McLaughlin*, 153 F. Supp. 653 (D.C., July 29, 1957)

Extraterritorial Powers and Services—Higher Water Charges Sustained

In action to prevent city from charging rates for water service outside city in excess of those collected from customers within city, held, action would not lie. *Lee* v. *City of Colorado Springs*, 315 P.2d 822 (Colo., Sept. 23, 1957), cert. denied on March 3, 1958 by United States Supreme Court.

False Arrest—City and City Officers Not Liable

In action for false arrest and imprisonment arising out of arrest by Arkansas City policeman, held, demurrers of city, city manager, chief of police, surety on official bond, mayor and city commissioners were properly sustained. *Wommack* v. *Lesh*, 305 P.2d 854 (Kan., Jan. 12, 1957)

Federal-City Relations—Property Acquired for Federal Government in Exchange for Services Not Ultra Vires

In action by judgment creditor of grantor contesting deed of property to Glendo Town Council which acquired property with money raised by private subscription for use by Federal Bureau of Reclamation in erecting buildings under agreement whereby the Bureau would give town $75,000 credit on sewer system for entire town, held, transaction not ultra vires under statute empowering town council "to . . . make such orders respecting [city property] as may be conducive to the best interests of the town" and even if transaction were ultra vires, plaintiff's attack was collateral and not by taxpayer or resident of town. *Amick* v. *Elwood*, 314 P.2d 944 (Wyo., Sept. 10, 1957)

Franchises—Bus—Requiring Payment of Part of Gross Receipts Valid

In action by city against bus company to recover amount due under franchise ordinance requiring payment of 2½% of gross revenues derived from fares as compensation for use of streets, held, franchise valid exercise of municipality's regulatory powers. *City of Peoria* v. *Peoria Transit Lines*, 144 N.E.2d 609 (Ill., Sept. 16, 1957)

Gas Rates—Rate of Return May Not Exceed Cost of Capital

In action to review gas rate proceedings before state public utility commission where commission in determining cost of capital for purpose of establishing rate of return considered normal risks and uncertainties, held, commission erred in making further allowances to provide rate of return above cost of capital. *City of Pittsburgh* v. *Pennsylvania Public Utility Commission*, 128 A.2d 372 (Pa., Dec. 28, 1956)

Labor—Membership in Union and Employment As Fireman

In mandamus action to compel reinstatement of city fireman, held, one who pays union charter fee, signs membership application and is elected to temporary local office in group seeking union charter was within statute prohibiting denial of employment on account of "membership" in union. *Lunsford* v. *City of Bryan*, 297 S.W.2d 115 (Tex., Jan. 9, 1957)

Notice of Claim Not Limitation On Amount Recoverable

In action by pedestrian injured in fall on public parkway where notice of claim for $91.50 was filed on last day of 90-day period for serving notice, held, claim merely represented intention to disclose then ascertainable extent of claim so that recovery of greater sum would be permitted, and filing claim was not offer to enter contract of settlement estopping plaintiff from claiming more. *Steed* v. *City of Long Beach*, 315 P.2d 101 (Cal. App., Aug. 30, 1957)

Policemen—Illegal Suspension And Right to Wages

In action by policeman to recover salary for period of suspension under statute providing for this if policeman is illegally discharged or suspended, held, police director's determination that plaintiff had not accepted bribe was declaration that suspension was illegal. *Rozmierski* v. *City of Newark*, 125 A.2d 747 (N.J., Sept. 27, 1956)

Sidewalks—Abutting Owners Not Liable for Defects In

In action against abutting owners of sidewalk for injuries sustained in fall caused by three-inch depression, held, ordinance requiring abutting owners to repair sidewalks and authorizing City of Salem to make repairs and impose lien on owner did not impose liability on property owners. *Marsh* v. *McLaughlin*, 309 P.2d 188 (Ore., Apr. 3, 1957)

Specific Performance Granted Against City—Notice of Claim Held Unnecessary

In action for specific performance against city to enforce property exchange agreement giving city land needed for highway, held that charter requiring notice of claim did not apply and fact that plaintiff intended to violate ordinance by keeping goats was no defense. *City of Lubbock* v. *Johnston*, 299 S.W.2d 764 (Tex. Civ. App., Feb. 25, 1957)

Taxicabs—Taxation of Ruled Invalid

In action to invalidate ordinance levying annual tax of $60 per cab for use of streets, held, ordinance conflicted with statute providing that state license conferred exclusive state privilege to drive on roads, streets, or other highways. *City of Memphis* v. *Yellow Cab, Inc.*, 296 S.W.2d 864 (Tenn., Dec 7, 1956)

Zoning—Bees Not Domestic Animals Permitted In Residential Area

In prosecution for keeping bees, held, bees not domestic animals within meaning of municipal code section authorizing keeping such animals in conjunction with residential use of lots. *People* v. *Kasold*, 312 P.2d 241 (Cal. App., July 22, 1957)

Recent City Manager Appointments

Walter G. Brown
Golden, Colo.

William G. Fultz
Sidney, Ohio

C. D. Pickerrell
Southport, N. C.

John D. Slater
Los Gatos, Calif.

William R. Cook
Abingdon, Va.

Sidney S. Frissell
Napoleon, Ohio

GEORGE AIASSA, manager of Tulare, Calif. for almost three years, has been appointed manager of West Covina, Calif., succeeding Clifford G. Petrie. Mr. Aiassa was previously manager in Santa Paula, Calif., and assistant city manager in Santa Rosa, Calif.

RALPH D. BOWEN, secretary of the borough of Baldwin, Pa., was recently appointed manager of Bethel, Pa., succeeding Charles Geisler.

WALTER G. BROWN, clerk of the County Court, Jefferson County, Colo., was appointed manager of Golden, Colo., succeeding Arthur Lowther.

WILLIAM R. COOK, administrative assistant in Greensboro, N. C., was recently appointed manager of Abingdon, Va., succeeding David Goodman.

JOHN L. FITZGERALD, who had been manager in Clifton, N. J., for five years until February 1957, was appointd manager of Cocoa Beach, Fla. He was previously city engineer and director of public works in Clifton, N. J.

ELLIS FOOTE, manager of Moab, Utah, has been appointed the first manager of Hayden, Ariz.

ARCHIE FRENCH, manager of Toledo, Ore. for more than two years, was recently appointed the first manager of Anacortes, Wash. Mr. French was previously city engineer in Pendleton, Ore.

SIDNEY S. FRISSELL, manager of Hopkins, Minn. for the past three years, was appointed the first manager of Napoleon, Ohio. Mr. Frissell was previously manager of Hastings-on-Hudson, N. Y., and Littleton, N. H.

WILLIAM G. FULTZ, city service-safety director in Sidney, Ohio, was recently appointed manager of that city, succeeding Glenn Lovern.

DAVID HICKMAN, city engineer of Cortez, Colo., was appointed the first manager of that city.

WILLIAM T. S. JACOBSON, who had been manager of Bethel, Vt. in 1955, has been appointed the first manager of Centreville, Ill.

RICHARD J. KROON, city clerk-engineer of Sioux Center, Iowa, was recently appointed manager of Lexington, Neb. succeeding Maurice E. Cole.

GENE JOYAUX, JR., a local businessman, was appointed city manager of Maywood, Ill., succeeding Gayle T. Martin.

EUGENE LYON, administrative analyst with the metropolitan government of Dade County, Fla., was appointed city manager of Vero Beach, Fla., succeeding Fred R. Lane. He was previously assistant city manager and personnel director in Coral Gables, Fla.

CHARLES M. MELCHIOR, manager of Marple Township, Pa. for the past two and one-half years, has been appointed manager of Middletown Township, Pa., succeeding Angus Johnson. He was previously administrative analyst in Philadelphia, Pa.

JAMES E. NEAL, manager of Vancouver, Wash. for the past six years, was recently appointed manager of Redwood City, Calif., succeeding E. A. Rolison. Mr. Neal was previously manager in Oceanside and Redding, Calif.

C. D. PICKERRELL, who had been manager of Whiteville, N. C. for six years until 1953, was recently appointed manager of Southport, N. C., succeeding Carl Galloway.

ROBERT C. SALISBURY, assistant secretary in the Geneva Savings & Loan Assn., was recently appointed the first manager of Geneva, Ohio.

JOHN D. SLATER, administrative assistant at Oceanside, Calif., has been appointed manager of Los Gatos, Calif., succeeding Karl A. Baldwin.

LYLE E. SPIERING, city engineer in Madison, S. D., was recently appointed city manager of that city, succeeding Ralph R. Johnson.

FREDERICK T. STAPLES, manager of Mount Desert, Me. for the past three years, has been appointed manager of Kennebunk, Me., succeeding John N. Balch.

DONALD R. THOMAS, trustee in Bellows Falls, Vt., was appointed manager of Bethel, Vt., succeeding Roy A. Kane.

ORIN F. NOLTING
Executive Director
International City Managers' Association

Citizens Upgrade Communities

FOR rural community residents in Mecklenburg County (Charlotte), N. C., the Charlotte Chamber of Commerce sponsors a contest each year to bring about a closer bond between town and country. It offers $750 annually and the community making the greatest improvement receives a $300 first prize.

Scoring is based on 1,000 points: 400 allocated for community development; 300 for a sound system for use of income; and 300 points for sound home management, home improvement and family living.

In the latter classification is a section devoted to beautification, appearance and maintenance of home and surroundings. Homeowners clean up around their homes and dress up their fencing and mailbox posts. Much attention is given to mail box standard—4 x 4-inch posts, pressure-treated with penta preservative to resist decay and termites.

Clear Creek won the contest the last two years and in 1957, 98% of the people erected new mailboxes on penta pressure-treated posts. Every post was painted white and their uniformity and attractiveness gave the judges a very favorable impression.

Residents install a completed mailbox and post in Mecklenburg County, N. C.

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Y-6

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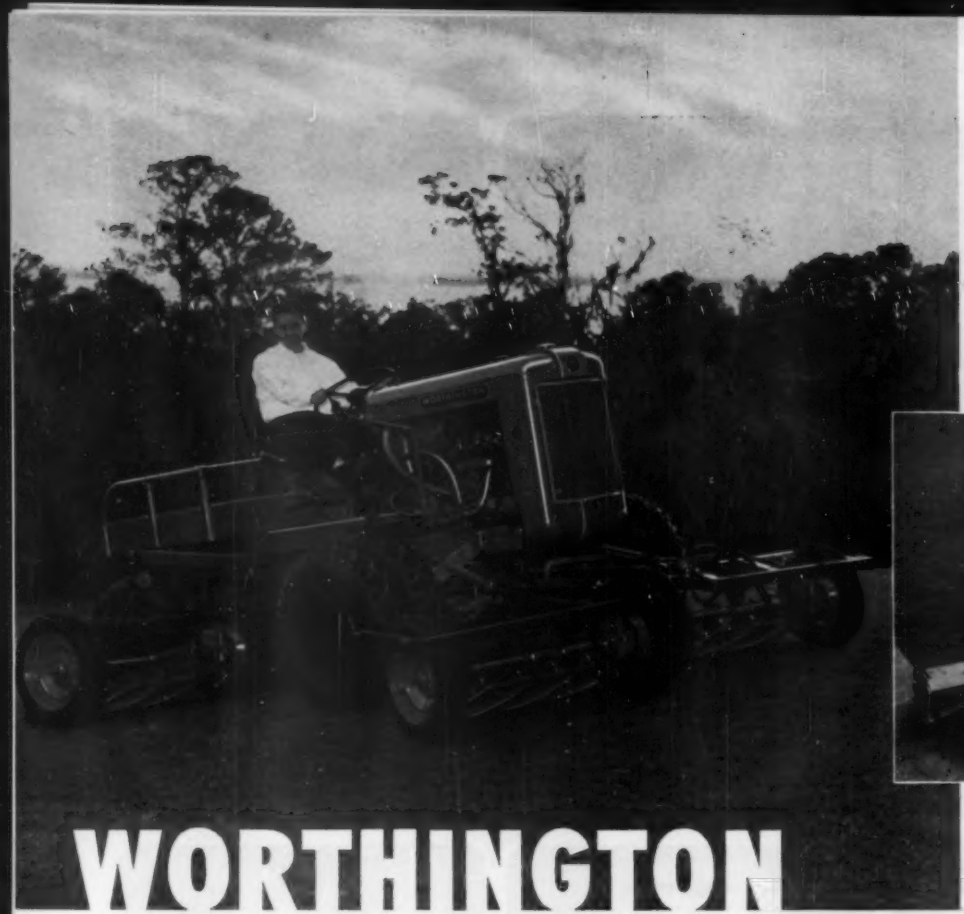

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Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

June 4-5—Gardner, Mass.
NEW ENGLAND SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Spring Meeting (Colonial Hotel). Vice Pres., Henry F. Munroe, 75 Paine Ave., Cranston 10, R. I.

June 5-7—Butte, Mont.
MONTANA MUNICIPAL LEAGUE. Annual Meeting (Finlen Hotel). Exec. Director, Alfred F. Klingler, Box 456, Shelby, Mont.

***June 8-11—Coronado, Calif.**
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting (Hotel del Coronado). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

June 8-12—Milwaukee, Wis.
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Hotel Schroeder). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

June 11-13—Colorado Springs, Colo.
COLORADO MUNICIPAL LEAGUE. Annual Meeting (Antlers Hotel). Exec. Director, Jay T. Bell, 2300 Broadway, Boulder, Colo.

June 11-13—Minneapolis, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Meeting (Hotel Nicollet). Exec. Sec., C. C. Ludwig, 15 University Library Bldg., Minneapolis 14, Minn.

June 12-13—Frederick, Md.
MARYLAND-DELAWARE SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Francis Scott Key Hotel). Sec.-Treas., W. M. Bingley, 7411 N. Charles St., Baltimore 18, Md.

June 12-14—Biloxi, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Buena Vista Hotel). Exec. Vice Pres., W. J. Caraway, 205 Lamar Life Bldg., Jackson, Miss.

June 12-14—McCall, Idaho
IDAHO MUNICIPAL LEAGUE. Annual Meeting (Shore Lodge). Exec. Dir., Robertson W. Smith, Center Bldg., Weiser, Idaho.

June 16-17—Ocean City, Md.
MARYLAND MUNICIPAL LEAGUE. Annual Convention (Atlantic Hotel). Exec. Sec., Edmund C. Mester, Box 276, College Park, Md.

***June 18-20—Sacramento, Calif.**
INSTITUTE OF TRAFFIC ENGINEERS—Western Section. Annual Meeting. Sec.-Treas., Charles E. Haley, 1216 E. Windsor Ave., Phoenix, Ariz.

June 18-20—Toledo, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Meeting (Commodore Perry Hotel). Sec.-Treas., Cleamon E. Lay, Ohio Dept. of Health, Div. of Sanitary Engineering, 101 N. High St., Columbus, Ohio.

June 22-23—Washington, D. C.
NATIONAL HOUSING CONFERENCE. Annual Meeting (Hotel Statler). Exec. Vice Pres., Lee F. Johnson, 1025 Connecticut Ave., N.W., Washington 6, D. C.

June 22-27—Boston, Mass.
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Statler Hotel). Exec. Sec., R. J. Painter, 1916 Race St., Phila., Pa.

June 23-27—Portland, Ore.
AMERICAN SOCIETY OF CIVIL ENGINEERS. National Convention (Multnomah Hotel). Exec. Sec., William H. Wisely, 33 W. 39th St., New York, N. Y.

June 25-27—Erie, Pa.
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Lawrence Hotel). Sec.-Treas., L. S. Morgan, 413 First National Bank Bldg., Greensburg, Pa.

June 25-27—Rapid City, S. D.
SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Meeting (Sheraton-Johnson Hotel). Exec. Dir., J. G. Barger, Box 938, Aberdeen, S. D.

June 30-July 2—Washington, D. C.
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Convention (Hotel Shoreham). Gen. Chairman, Henry Schultheis, Mt. Zephyr Drive, Alexandria, Va.

July 7-11—Cleveland, Ohio
THE AMERICAN INSTITUTE OF ARCHITECTS. Annual Meeting (Cleveland Hotel). Exec. Dir., Edmund R. Purves, 1735 New York Ave., N.W., Washington 6, D. C.

July 20-22—Savannah, Ga.
GEORGIA MUNICIPAL ASSOCIATION. Annual Convention (Ogelthorpe Hotel). Exec. Dir., W. E. George, 603 Fulton Federal Bldg., Atlanta, Ga.

***July 27-30—Harrisburg, Pa.**
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Convention (Penn-Harris Hotel). Exec. Dir., Samuel Siegle, 320 State Theatre Bldg., Harrisburg, Pa.

July 28-August 1—New York, N. Y.
NATIONAL ASSOCIATION OF SANITARIANS. Annual Conference (Sheraton-McAlpin Hotel). Exec. Sec., Nicholas Pohlit, University of Denver, Denver 10, Colo.

August 10-13—Portland, Ore.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (Multnomah Hotel). Exec. Dir., Bernard F. Hillenbrand, 1721 De Sales St., N.W., Washington 6, D. C.

***August 13-15—University Park, Pa.**
PENNSYLVANIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Convention (Pennsylvania State University). Sec.-Treas., J. R. Harvey, 966 S. Main St., Meadeville, Pa.

August 17-22—Toronto, Canada
ILLUMINATING ENGINEERING SOCIETY. Technical Conference (Royal York Hotel). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

***August 25-29—Asheville, N. C.**
NATIONAL SHADE TREE CONFERENCE. Annual Conference (Battery Park Hotel). Sec.-Treas., L. C. Chadwick, Dept. of Horticulture, Ohio State University, Columbus, Ohio.

August 31-Sept. 6—Liege, Belgium
INTERNATIONAL FEDERATION FOR HOUSING AND TOWN PLANNING. Annual Convention. For information address Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

September 3-5—Philadelphia, Pa.
NATIONAL CITIZENS PLANNING CONFERENCE OF THE AMERICAN PLANNING AND CIVIC ASSSOCIATION. (Bellvue-Stratford Hotel). Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

***September 7-10—Pittsburgh, Pa.**
PENNSYLVANIA LEAGUE OF CITIES. Annual Convention (Penn-Sheraton Hotel). Exec. Dir., John N. O'Neil, 506 State Bldg., Harrisburg, Pa.

***September 7-10—Lake Placid, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Fall Meeting (Lake Placid Club). Exec. Sec., Kimball Blanchard, Neptune Meter Co., Room 1525, 19 W. 50th St., New York 20, N. Y.

***Sept. 8-10—Grand Rapids, Mich.**
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Pontlind Hotel). Sec.-Treas., T. L. Vandervelde, Chief, Section of Water Supply, Michigan Dept. of Health, Lansing, Mich.

September 9-12—New York, N. Y.
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Conference (Waldorf-Astoria Hotel). Exec. Dir., Elliott Jackson, Municipal Auditorium, Atlanta, Ga.

September 11-13—New Orleans, La.
UNITED STATES CONFERENCE OF MAYORS. Annual Conference (Roosevelt Hotel). Exec. Dir., Harry R. Betters, 1707 H St. N.W., Washington 6, D. C.

Sept. 14-17—Colorado Springs, Colo.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Antlers Hotel). Asst. Dir., Allen H. Seed, Jr., 47 E. 68th St., New York 21, N. Y.

***Sept. 14-17—Poland Spring, Maine**
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Convention (Poland Spring House). Sec., Joseph C. Knox, 73 Tremont St., Room 549, Boston, Mass.

September 16-19—Los Angeles, Calif.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Conference (Biltmore Hotel). Sec.-Mgr., B. Richter Townsend, International Association of Fire Chiefs, 232 Madison Ave., New York 16, N. Y.

***September 21-24—Harrisburg, Pa.**
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Convention (Penn-Harris Hotel). Sec.-Treas., Claude C. Fogelman, 1717 Main St., Northampton, Pa.

September 22-26—Atlantic City, N. J.
NATIONAL RECREATION CONGRESS (Hotel Ambassador). Sec., Willard B. Stone, 8 W. 8th St., New York 11, N. Y.

Sept. 28-Oct. 1—Kansas City, Mo.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Muehlebach Hotel). Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago, Ill.

***October 5-8—Boston, Mass.**
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Convention and Products Exhibition. (Statler-Hilton Hotel). Exec. Vice Pres., Albert H. Hall, 1001 Connecticut Ave., N.W., Washington 6, D. C.

Oct. 6-8—Shawnee-On-Delaware, Pa.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference (Shawnee Inn). Sec., Elsie V. Haas, 684 Park Avenue, New York, N. Y.

October 6-9—Detroit, Mich.
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Conference (Sheraton-Cadillac Hotel). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N.W., Washington, D. C.

October 6-10—Sun Valley, Idaho
INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. Annual Conference (Sun Valley Lodge). Managing Dir., Hal Colling, 610 South Broadway, Los Angeles, Calif.

(Continued on next page)

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8-223

October 7-9—
Blackwater Falls State Pk., West Va.
NATIONAL CONFERENCE OF STATE PARKS. Annual Meeting (Park Lodge). Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

***October 8—New York, N. Y.**
REGIONAL PLAN ASSOCIATION. Annual Conference (Hotel Roosevelt). Exec. Vice Pres., C. McKim Norton, 205 E. 42nd St., New York 17, N. Y.

October 12-15—New Orleans, La.
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Roosevelt Hotel). Exec. Vice Pres., G. W. Anderson, 292 Madison Avenue, New York 17, N. Y.

October 12-15—San Francisco, Calif.
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Convention (Sheraton-Palace Hotel). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

October 12-16—New Orleans, La.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Convention (Jung Hotel). Exec. Sec., Alfred B. La Gasse, Ogelbay Park, Wheeling, W. Va.

October 19-23—Cleveland, Ohio
NATIONAL ASSOCIATION OF ASSESSMENT OFFICERS. Annual Convention (Hotel Cleveland). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

October 19-23—Dallas, Texas
INTERNATIONAL CITY MANAGERS ASSOCIATION. Annual Convention (Statler Hotel). Exec. Dir., Orin F. Nolting, 1313 E. 60th St., Chicago 37, Ill.

October 20-23—Philadelphia, Pa.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. 63rd Convention (Sheraton Hotel). Convention Mgr., Irvin Shulsinger, 130 W. 42nd St., New York, N. Y.

***October 26-30—New York, N. Y.**
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Hotel New Yorker). Exec. Dir., W. C. Dutton, Jr., Suite 410, 2400 16th St. N.W., Washington 9, D. C.

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October 26-31—Miami Beach, Fla.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel Fontainebleau). Exec. Sec., Leroy W. Wike, 618 Mills Bldg., Washington 6, D. C.

October 27-31—Philadelphia, Pa.
NATIONAL TAX ASSOCIATION. Annual Convention (Sheraton Hotel). Exec. Dir., Walter J. Kress, 905 Payne-Shoemaker Bldg., Harrisburg, Pa.

October 27-31—St. Louis, Mo.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Convention (Kiel Auditorium). Exec. Sec., Berwyn F. Mattison, M.D., 1790 Broadway, New York 19, N. Y.

October 28-31—Los Angeles, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Ambassador Hotel). Sec., H. J. Ongerth, Engineer, State Dept. of Health, 2180 Milvia St., Berkeley, Calif.

***Nov. 10-14—Rio de Janeiro, Brazil**
INTERAMERICAN MUNICIPAL ORGANIZATION. Annual Convention. Sec.-General, Dr. Carlos M. Moran, 351 Obispo St., Havana, Cuba.

***November 11-13—Miami Beach, Fla.**
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Deauville Hotel). Exec. Sec., David M. Baldwin, 211 Stratchona Hall, New Haven 11, Conn.

***November 20-21—Princton, N. J.**
THE TAX INSTITUTE. Annual Symposium (Princeton Inn). Exec. Dir., Mabel Walker, 457 Nassau St., Princton, N. J.

***Nov. 29-Dec. 2—San Francisco, Calif.**
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Sheraton-Palace Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

***Nov. 30-Dec. 3—Boston, Mass.**
AMERICAN MUNICIPAL ASSOCIATION. Annual Congress (Statler Hotel). Exec. Dir., Patrick Healy, Jr., 1313 E. 60th St., Chicago 37, Ill.

***Nov. 30-Dec. 3—Chattanooga, Tenn.**
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Convention (Hotel Patten). General Counsel, Charles S. Rhyne, 839 17th St. N.W., Washington, D. C.

***December 2-5—Washington, D. C.**
AMERICAN PUBLIC WELFARE ASSOCIATION. National Biennial Round-Table Conference (Statler Hotel). Dir., Loula Dunn, 1313 E. 60th St., Chicago 37, Ill.

Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

Municipal Welfare

COMMUNITY WELFARE ORGANIZATION—*By Arthur Dunham. Thomas Y. Crowell Company, 432 Fourth Ave., New York 16, N. Y. 1958. Cloth.* $5.75.

This is a classroom textbook on the sensitive subject of community welfare and its organizations. It gives insight to the ticklish question of what "welfare" actually is, and how it differs from police work on one hand, and standard municipal service—such as sanitation, fire protection, utility service—on the other. It will be of great help to earnest, municipally appointed welfare committees, and should be a welcome addition on the subject to a municipal library.

Definition and Solution of the Landslide Problem

LANDSLIDES AND ENGINEERING PRACTICE—*Highway Research Board, Special Report 29, National Academy of Sciences, National Research Council, Publication 544. Highway Research Board, Washington 25, D. C. 1958. 232 pp. Cloth.* $6.

A compilation of information useful to any engineer who must recognize, avoid, control, design for, or correct the more important types of landslide movement.

The book, designed for practical use with a minimum of theoretical discussion, is divided into two parts. Part I is called "Definition of the Problem", and Part II, "Solution of the Problem". It provides an introduction to all of the main factors that go into the solution of a given landslide problem.

Landslides and Engineering Practice was compiled by the Committee on Landslide Investigation and edited by Edwin B. Eckel. It contains numerous illustrations and tables to help clarify the subject matter.

Quebec Year Book

STATISTICAL YEAR BOOK, QUEBEC 1956-1957—*Bureau of Statistics, Department of Trade and Commerce, Province of Quebec, Quebec City, Que. 1958. 609 pp. (bilingual text). Cloth.* $5.00.

This is the 40th annual Statistical Yearbook of the Province of Quebec, Canada. Particular emphasis this year is laid on the creation of the Quebec Marketing Board and on hydroelectric developments. Other new features include: greater detail of statistics relating to construction; the returns of the Quinquennial Census of 1956; more information on the hotel and restaurant business; and more detailed statistics on education and on province finances.

The Book of the States

THE BOOK OF THE STATES—*The Council of State Governments, 1313 E. 60th Street, Chicago 37, Ill. 1958. 546 pp. Cloth.* $9.

This is the 12th edition of the standard reference work on state governments—their organization, finances and services. The book is published biennially by the Council of State Governments. To keep the book current, supplements are issued in the odd years at a charge of $2.50.

The book is divided into eight major sections: constitutions and elections; legislatures and legislation; judiciary; administrative organization; finance; intergovernmental relations; major state services; and historical data on the states, and a list of the Governors, as of January 1958.

Revised Text For Sanitation and Public Health Engineers

MUNICIPAL AND RURAL SANITATION—*By Victor M. Ehlers, C. E., and Ernest W. Steel, C. E. McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, N. Y. Fifth Edition, 1958. 596 pp. Cloth.* $9.

A single volume covering the most important phases of sanitation, this book has been revised to keep abreast of the changing field. Practical problems based on the author's own experience in the field, plus the easy-to-understand text makes this an excellent text for the college student as well as the practicing public health engineer or sanitarian.

The revised edition includes up-to-date methods and concepts in rodent and vector control; the latest formulas on disinfectants and insecticides; and modern costs, equipment, and methods for the collection and disposal of municipal refuse.

Additional data includes federal aid available on housing, institutional sanitation and industrial hygiene developments. Tables include information on recommended illumination values, threshold limit values, and new toxicological data on gases, fumes, vapors and mists.

Assessment Conference

ASSESSMENT ADMINISTRATION, 1957—*Papers presented at the 23rd International Conference on Assessment Administration, Dallas, Texas, September 29-October 2, 1957. National Association of Assessing Officers, 1313 E. 60th Street, Chicago 37, Ill. 1958. 236 pp. Paperbound.* $5.

The Assessment Administration Conference held in Dallas, Texas last fall heard reports from the officials of the National Association of Assessing Officers. The agenda included demonstration appraisals, round-table discussions and seminars. The demonstration appraisals gave examples of modern and obsolete motels and hotels, residences, industrial plants, office buildings and farms. The round-table discussions took up such matters as property assessment; aerial mapping; determination of urban land values; business inventory assessment; and exemption of institutional real estate. The seminars dealt with effects of limited access highways on values of adjoining properties; the use of soil classification in determining farm land values; public relations; and special assessments for public improvement.

Housing and Slum Clearance— New York State

NEW YORK STATE ASSISTANCE IN SLUM CLEARANCE, URBAN RENEWAL AND HOUSING—*State of New York, Division of Housing, 270 Broadway, New York 7, N. Y. 1957. 72 pp. Illustrated. Paperbound.*

The New York State Division of Housing in its 1957 annual report gives a detailed account for the first time of state assistance to municipalities for purposes of housing, slum clearance and redevelopment. Nineteen municipalities, including New York City, are cited as examples. The report also discusses low-rent housing progress; low-profit private housing; research in cost of construction; a housing code research study; housing for the aging; the impact of urban renewal on Utica; and surveys of housing in seven other New York municipalities. In conclusion, it reports on housing legislation enacted in 1957.

Municipal Taxation

THE SELF-SUPPORTING CITY—*By Gilbert M. Tucker. Robert Schalkenbach Foundation, 50 E. 69th St., New York 21, N. Y. 1958. 100 pp. Paperbound.* $1.

A refreshing little book that the city official and other students of government might like to have in their library. It presents a discussion that resembles somewhat the single-tax theory.

The author offers homely little examples showing that the owners of land benefit by improvements that others create without contributing to the cost of these improvements. He cites rapid transit facilities, bridges, expressways, water and sewerage facilities, and argues that since the land receives the benefit, it should pay the cost. Specifically, he wants decreased taxes on buildings and comparable improvements until wholly eliminated; and increased taxes and assessments on land to the point where they support the government.

Philadelphia Home Rule Charter

A DISCUSSION OF SOME PROPOSED REVISIONS OF THE HOME RULE CHARTER: THE 1951-56 EXPERIENCE—*Bureau of Municipal Research and Pennsylvania Economy League (Eastern Division), 1321 Arch St., Philadelphia 7, Pa. 1957. 111 pp. Paperbound.* $1.50.

This is a thorough study of Philadelphia's Home Rule Charter and proposed amendments to it. It surveys in depth events leading up to the charter's adoption; the machinery for amendments; efforts at revision to date; basic features of the charter; Philadelphia's frame of government; the City Council and separation of powers; administration of the city; and progress to date at completing city-county consolidation.

The appendix includes the texts of all formally proposed amendments to date.

Renewal Plan For a Livestock Show Area

URBAN RENEWALS—*A Plan for the Livestock Show Area in Little Rock, Ark. Housing Authority of Little Rock, 121 E. Second St., Little Rock, Ark. 1958. 35 pp. Paperbound.* $3.

This plan for the urban renewal of Little Rock's livestock show area is the second federally assisted, predominantly rehabilitation project to be approved for a loan and a grant in the U. S. In view of the many compliments received on its presentation, it has been published as a guide for other local renewal agencies interested in rehabilitation. The guide includes a Bill of Assurance (Exhibit A), and a report on the Structure and Condition Survey (Exhibit C).

Community Groups

CASE HISTORIES IN COMMUNITY GROUP ORGANIZATIONS—*By Murray G. Ross. Harpers & Brothers, 49 E. 33rd St., New York 16, N. Y. 250 pp.* $3.50.

This little book contains descriptions of actual incidents, disguised as to place and personality, that have occurred when municipal and other welfare groups have had to deal with well-meaning but often misguided local leaders. Any mayor, councilman, city manager, could add to this list indefinitely. Nevertheless the successful methods used in dealing with these public-spirited but often opinionated people, are helpful and the results obtained, refreshing.

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"OPERATES 1693 HOURS without a breakdown of any kind!"

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February 4, 1958

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Fitchburg, Mass.
Mr. Perini, Superintendent

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We have followed faithfully your instructions in using a hone on the knives each morning, we find that by doing this we can use the knives for five weeks before sharpening. Even then only about 12 thousands are needed to bring them back.

Contractors find your chipper is ideal and saves them much time and dollars in clearing a woodland area before bull dozing begins.

Your Engineering skill and knowhow has resulted in the finest of all Chippers and I have seen them all in operation.

Hauling time is reduced two-thirds, this results in a large saving in gasoline, parts and labor. I would never again be without one.

Respectfully,
Weldon S. Campbell
Weldon S. Campbell
Tree Warden & Moth Supt.
Greenfield, Mass.

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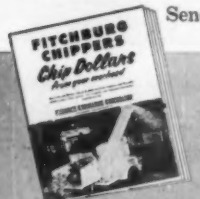
Fitchburg Chippers are designed by engineers for busy, trouble-free service. The exclusive spring-activated feed plate adjusts itself automatically—provides protection from damaging foreign material—assures smooth, efficient operation. The power take-off clutch gives safe starts and stops. There's no fly wheel to cause bearing trouble. These features keep a Fitchburg Chipper on the job . . . save you time and money.

Send for a copy of "Chip Dollars From Your Overhead."



NEW FREE BOOK
"Chip Dollars From Your Overhead"
Complete with cutaway color drawings of Chipper in action. Specifications, etc.

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. AC-48

Send my free copy of "Chip Dollars From Your Overhead" to:

Name _____

_____
(Position or Company)

Address _____

City _____ State _____

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

Public Library Survey

THE FOND DU LAC PUBLIC LIBRARY, FOND DU LAC, WIS.—*A Survey; Recommendations for Future Development and Planning. By Frederick Wezeman, Library School, University of Minnesota, Minneapolis, Minn.* 1957. 43 *pp. Paperbound.* $3.

The author undertook to determine the requirements and needs of the Fond du Lac Public Library by conducting interviews with the mayor, superintendent of schools, the library board and library employees; and, by investigating the following aspects of the library: physical plant; materials; internal operation; personnel staffing; pay scales and services; relations with other libraries and agencies. He also surveyed the economic and educational standards of Fond du Lac.

The results indicated a need for a new youth library; a modernization program of both building and materials; an increased budget; the adoption of a classification and pay scale for library employees; maintaining liaison with other libraries and integrating the county library with Fond du Lac's.

Planning Street Trees

A PLANNED STREET TREE PROGRAM FOR AN ATTRACTIVE COMMUNITY—*Erie County Planning Board, Buffalo, N. Y.* 1957. 14 *pp. Paperbound.*

The street tree planting program offered in this report was prepared by Arthur Wingerter, associate planner, as a guide to help communities plan, select and plant the proper street trees.

The report discusses why communities should have street trees; what problems are created by the improper planting of such trees; how to select the right tree to fit in with a community's street requirements. It tells how a community can plan a long-range street tree planting program and indicates what steps should be taken to aid in proper planning. It further points out to the community its responsibility for proper street tree planting. In conclusion, the report offers suggested lists of trees in various categories for planting.

Updating an Old Township

ADMINISTRATIVE SURVEY OF DARBY TOWNSHIP, DELAWARE COUNTY, PA.—*Bureau of Municipal Research and Pennsylvania Economy League (Eastern Division), 1321 Arch St., Philadelphia 7, Pa.* 1957. 407 *pp. Paperbound.* $2.50.

In 1956 the Darby, Pa. Township Commissioners requested the Buresu of Municipal Research and the Pennsylvania Economy League to undertake a thorough study and survey of the township—its finances; its services, and its regulatory and control functions. The result of the survey confirmed the suspicions of the Commissioners that a major overhaul of the township's administrative methods and procedures would be necessary.

The report listed over 120 recommendations—the major one being more full-time administrative personnel to give the township government proper direction and control.

Urban Renewal Study

URBAN RENEWAL—*New York City Planning Commission, Department of City Planning, 2 Lafayette St., New York 7, N. Y.* 1958. 96 *pp. Paperbound.*

This is a renewal study of New York City's West Side between 87th and 97th streets and Central Park West and Amsterdam Avenue. It examines the causes and effects of blight in this area in order to determine the feasibility of undertaking an urban renewal program that would combine clearance and redevelopment with rehabilitation and conservation.

The report is well presented and should be of value to other cities faced with similar problems.

Other Reports Received

Administration & Government

DALLAS, TEXAS—Multiple Governmental Units in the Metropolitan Complex—Dallas. Business Executives' Research Committee, Southern Methodist University, Dallas 5, Texas. 1956.

GENERAL—1957 Census of Governments: Summary of Public Employment. U. S. Department of Commerce, Bureau of the Census. Vol. II, No. 1, 1958. Available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 75c.

Annual Reports

1957 Annual Reports for Alliance, Neb.; Muskegon, Mich.; New Canaan, Conn.; Springfield, Ill.; and Greenwich, Conn. (latter available from Board of Estimate and Taxation.

Finance & Taxation

GENERAL—Accounting Manual and Chart of Accounts, Designed for Use by Small Municipalities. Doubleday Brothers & Co., Kalamazoo, Mich. 1958. $3.50.

GENERAL—The Financial Challenge to the States: An Analysis of State Fiscal Developments 1946-1957. Tax Foundation, Inc. New York 20, N. Y. 1958. Single copies on request.

Parks & Recreation

GREENSBORO, N. C.—See It Now—1957 Annual Report. Parks and Recreation Commission, Municipal Building, Greensboro, N. C.

NEW JERSEY—1958 Yearbook of the Public Recreation Association of New Jersey. For further information, contact Jack W. Moody, President, Middletown, N. J.

Planning, Zoning & Housing

GENERAL—Aids to Your Community: Programs of the Housing and Home Finance Agency. U. S. Housing and Home Finance Agency. Available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1958. 15c.

STANISLAUS CO., CALIF.—Flood Plain Zoning. 1956. Available from County Planning Department, Modesto, Calif.

Public Safety

AUSTIN, TEXAS—1957 Annual Report of Crestview Fire Station. Available from Office of City Manager, Austin, Texas.

GENERAL—Rescue Skills and Techniques. Federal Civil Defense Administration, Battle Creek, Mich. 1958.

Refuse

GENERAL—Municipal Incinerator Design: A Survey of Engineering Practices. U. S. Department of Health, Education & Welfare, Public Health Service, Division of Sanitary Engineering Services, General Engineering Program, Washington 25, D. C. 1957. Limited quantity.

Sanitation

GENERAL—Urban Fringe Sanitation: A Selected Bibliography. U. S. Department of Health, Education and Welfare, Public Health Service. 1958. Available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 15c.

Sewerage & Sewage Purification

AUBURN, MAINE—Annual Report of Trustees of Water and Sewerage Districts for 1957.

RACINE, WIS.—Sewage Disposal Plant and System, 30th Annual Report for 1957. Commissioner of Public Works, Racine, Wis. 1958.

Streets

BURLINGTON CO., N. J.—Preliminary Highway Study. Community Planning Associates, Princeton, N. J. 1958. $2.

GENERAL—Highway Bridges of Steel. American Institute of Steel Construction, Inc., New York 17, N. Y. 1958. No charge.

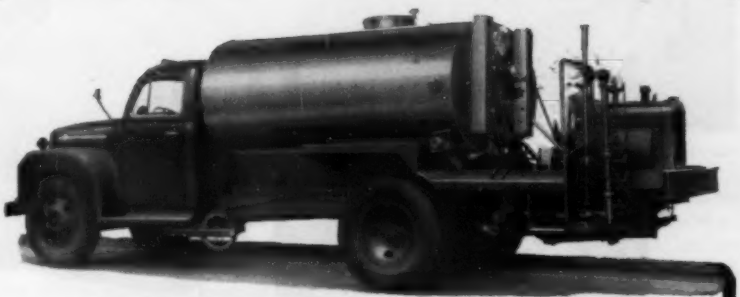
WAYNE CO., MICH.—Fifty-First Annual Fiscal Report for 1957 of Board of County Road Commissioners. County Board of Supervisors, Detroit 26, Mich.

Water

CALIFORNIA—Domestic Water Supply Statistics. Available from Bureau of Sanitary Engineering, State Department of Public Health, Berkeley 4, Calif. 1958.

NEW ENGLAND—1957 Annual Report of New England Interstate Water Pollution Control Commission, Boston 8, Mass.

NEW DESIGN!
NEW EFFICIENCY!



Asphalt men designed it. Asphalt men tested it. The new Standard Asphalt Distributor has been field tested for two years on every type and grade of asphalt available, over three million gallons in all.

MODEL 424-56
PRESSURE DISTRIBUTOR

New power, New pump, All new features—as follows: A new "Econo-bar" spray bar in addition to the famous Standard Steel "Miracle" spray bar. New hydraulic spray bar lift. More convenient, easier to operate controls. Shorter, simplified piping to reduce heat bleed-off.

The Model 424-56 is built in 1000, 1250 and 1500 gallon capacities as standard and can be furnished in other capacities, either truck or semi-trailer mounted.

Write for Catalog #RS1256 or see your dealer.

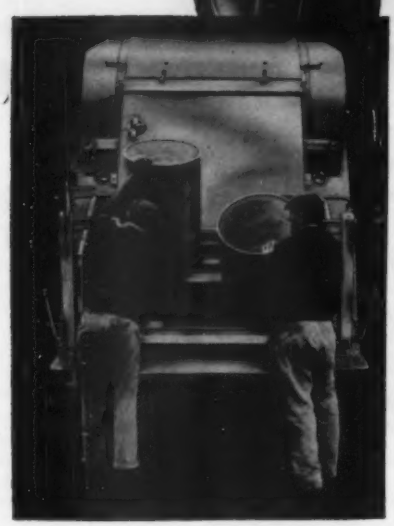
OTHER PRODUCTS OF STANDARD STEEL
ASPHALT DISTRIBUTORS . . . BURNERS . . . POWER AND TRACTION DRIVEN CONSTRUCTION BROOMS . . . MAINTENANCE DISTRIBUTORS . . . TAR KETTLES . . . AGGREGATE SPREADERS . . . PIPE LINE EQUIPMENT . . . SUPPLY TANKS . . . SHELVING HARDWARE . . . AND AGRICULTURAL EQUIPMENT

Built to the Highest Standard

Standard Steel Works, Inc. NORTH KANSAS CITY, MO. PD-157

NEW! WIDE HOPPER ROTO·PAC

means *fastest* refuse collection ever



TWO MEN LOAD AT THE SAME TIME

THE ONLY REFUSE COLLECTION UNIT WITH AUTOMATIC CONTINUOUS COMPACTION

Here it is . . . another big advantage with ROTOPAC. Now, ROTOPAC's new 56½" wide hopper speeds loading, permits two men to load at the same time. Thus, with faster loading and no time wasted for compaction, ROTOPAC picks up more than three loads in less time than it takes ordinary, batch-type units to pick up two loads. Imagine how ROTOPAC, with this unequalled efficiency, can cut the cost of your community's refuse collection—picking up more refuse faster with far less units.

For all the facts on ROTOPAC—its non-selective loading, its proven record of minimum maintenance, and its greater preference among loaders—write for helpful brochure.

CITY TANK CORP.

53-09 97th Place, Corona, N. Y.

Sales and Service in All Principal Cities

Where to Purchase

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

Steel Wire Bristle Sections Make Street Brooms of Unusual Durability

Crimped steel wire bristle sections help make this rotary Danline street sweeping broom long-wearing.

Newcomer to the field is a radically different street sweeping broom, now being distributed by Newark Brush Co. Developed about three years ago in Denmark, and extensively tested in Europe where there have been over 1,000 installations, the new broom is reported to last as much as 300-500 sweeping hours, and indications are that it can give 600 sweeping miles per inch of wear.

Basic components of the Danline Street Sweeping Brush are a permanent central steel core (conventional brooms use a wooden core), reusable metal spacers, and circular wire brush sections. Assembly is accomplished simply by slipping alternate brush sections and spacers onto the core. No special skill is required. A key projecting into the center core opening of each section keeps each component section from spinning around the broom's steel core.

Brush sections are filled with a special round steel brush wire, 0.0275 inch in diameter. Unlike flat wire, this fill is said to resist corrosion and to wear down evenly without breakage. The relatively small wire size means more "sweeping ends" and more uniform fill.

The new broom can be used for street sweeping, airport cleaning, snow removal and street construction work. It is pointed out that on the latter, the broom has been able to remove as much as 4 inches of compacted sand in but a single pass.

Danline brushes are available for all street sweeper models—towed, tractor-mounted, or end-loaded. Mounting is standard. Brush diameters range from 26 inches to 36 inches, and brushes are available in lengths up to 10 feet.

For additional information, write to the NEWARK BRUSH CO., 257 MICHIGAN AVE., KENILWORTH, N. J., or you may use the Post Card on the insert following Page 52. Circle No. 834.

Mounted Waste Receptacle Discourages "Litterbugs"

This waste receptacle is designed for attachment to post or wall, with height determined by the specific needs of each application. It has just been introduced by Vega Industries, Inc., and should prove ideal for use in streets and parks, schools, shopping centers, hospitals, public buildings and industry, or wherever waste control is important.

When securely fastened in a stationary position, the San-Equip Waste Receptacle, as it is called, is free from vandalism and damage due to rough handling. It cannot be blown away or knocked down, and it requires no handling for unloading (just release the bottom catch and raise the lower flap).

The new unit minimizes maintenance costs, too. A damp cloth is all that is needed to keep the receptacle's baked enamel finish looking new. And since it is elevated above ground, there is no chance of bottom rust occurring. Also, it does not interfere with sweeping and mopping work.

For additional information on how this weathertight container can help you end waste storage and collection problems, write VEGA INDUSTRIES, INC., 616 E. BRIGHTON AVE., SYRACUSE 5, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 840.

Redesigned Incinerator Grapples Reduce Maintenance Costs

Changes in the TI-150 and TI-250 Blaw-Knox incinerator grapples have been made to combat two problems that have long plagued incinerator operators: tine breakage and loss of tines due to failure of retaining arrangements.

Now equipped with cast Hadfield 12-14% manganese steel tines, these redesigned grapples, when operated with reasonable care, will resist the abrasiveness caused by scraping of the grapple against the concrete wall of the incinerator. And rather than break when subjected to heavy

national's
PSYCON
stops
filter
flies

National's safe, economical PSYCON will assure almost 100% kill of all the larvae and pupae as well as the adult filter fly. In destroying this health and sanitation menace in your city, PSYCON is guaranteed to be harmless to algae and bacteria and will not affect snails and B.O.D. It is no longer necessary to use dangerous bacteria-killing chlorination or expensive time-consuming water flooding. National's PSYCON will end your filter fly problem.

A PRODUCT OF NATIONAL RESEARCH

national
DISINFECTANT COMPANY
2417 Commerce, Dallas
906 S. Seventh, St. Louis

Purchasing News

blows as constantly experienced in typical incinerator operation, the new tines will bend.

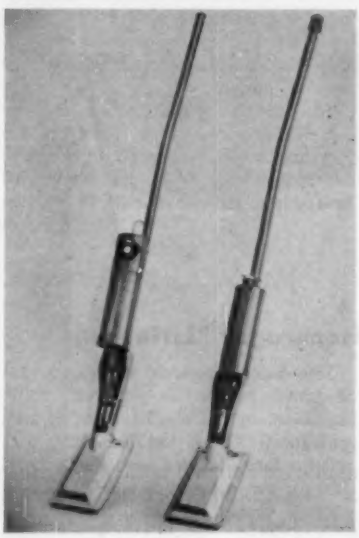
It is expected that these innovations will save the industry up to 25% in maintenance costs. For complete information, write BLAW-KNOX COMPANY, 300 SIXTH AVE., PITTSBURGH 22, PA., or you may use the Post Card on the insert following Page 52. Circle No. 828.

Engineering Firm Moves Its Offices

PARSONS, BRINCKERHOFF, HALL & MACDONALD have moved to larger offices on the 23rd and 24th floors of 165 Broadway, New York, N. Y.

Established in New York City in 1885, the firm has always maintained headquarters in downtown Manhattan. It is anticipated that the new and larger quarters will provide greater convenience and efficiency.

Smooths Asphalt Paving



A self-heating Asphalt Smoothing Iron for finishing and patching asphalt paving is announced by CALWELD, INC., 7222 E. SLAUSON AVE., LOS ANGELES, CALIF. Light and easy to carry, this smoothing iron heats to operating temperature in ten minutes and maintains this heat. Called the Surfa-Slick, it is available in two models: gasoline-fired and LP-Gas fired. It is economical to use and eliminates the problem of transporting and tending an unwieldy furnace. Weight is only 40 pounds. For additional information, write the company, or you may use the Post Card on the insert following Page 52. Circle No. 825.

Takes the Guess Work Out of Joint Sealing

A careful study and survey of equipment and application procedures necessary to successful sealing of concrete joints with hot applied rubber-bearing compounds has resulted in a new line of Uniflow joint sealing equipment manufactured by the Cutler Engineering Co.

In an 8-hour day, Uniflow equipment permits 3 to 4 times more joint sealing than could formerly be done, for simple, yet accurate, controls govern the heating, melting, flow and correct application of the sealing compound according to recipe. Uniflow equipment keeps the compound and heat transfer oil in constant circulation, the material lines being heated by the heat transfer lines throughout the system. This eliminates overheating, which damages the material, and cold spots, which cause freezing and the prevention of free flow of material.

The exceptional mobility of the self-propelled, power-driven equipment allows the operator to concentrate on doing a good job of joint sealing.

The Uniflow line of joint sealing is distinctly different and is unusually efficient. It does joint sealing quickly and economically. For additional information, write CUTLER ENGINEERING CO., 5435 W. 63rd ST., CHICAGO 38, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 861.

High Purity Feed Solution for Small Water Systems

Instantreat is a rapidly soluble complex phosphate that affords low-cost protection against lime scale, corrosion and rusty iron water. It was developed by the Calgon Company especially for use with solution feeding equipment in small water systems, private residences, institutions, motels.

When used with the Calgon chemical feed pump, Instantreat provides a sterile

Purchasing

feed solution that is entirely safe for use in drinking water systems. Only two minutes are required to prepare a high purity feed solution with Instantreat.

The feed pump is a water-operated unit that offers accurate, automatic proportioning at a cost reported to be far below that of other pumps with similar performance features. The compact pump weighs 4½ pounds, has no electrical connections or motor, and does not require expensive auxiliary equipment. When used with Instantreat, the manufacturer claims that the pump will provide continuous automatic treatment for systems with flow requirements up to 10,000 gallons per hour.

For complete information on Instantreat and/or the pump, write CALGON CO., HAGAN BLDG., PITTSBURGH 30, PA., or you may use the Post Card on the insert following Page 52. Circle No. 826.

Big Beam Hazard Warning

This is the Transista Flash Model 410T, new Big Beam barricade safety light that uses a modern transistor circuit to lengthen battery life and produce about 1,500 continuous operation hours from two 6-volt lantern batteries.

The Model 410T has been designed for heavy-duty work. Telescoping top with rubber gasket prevents water from entering the battery case. An acid-proof plastic liner in the container prevents the acid from dead batteries from corroding the case interior.

There are no moving parts in the 410T flasher. Its head is two-directional; flash

NEW NEW NEW

Convertible ½-yd. Hydrohoe-Hydroshovel-Hydrocrane

New all-hydraulic H-5 Hydrohoe-Hydroshovel combines high production with traditional Hydrocrane mobility, flexibility

You asked for it — here it is! Real production digging, yards and yards of it, fast . . . a total of 90 hydraulic horsepower at your command. Dipper reversed, it's a powerful swing loader and it's convertible to crane, clamshell, auger, etc. It's the all-new H-5 Hydrohoe-Hydroshovel!

NEW DIFFERENTIAL VALVE LETS YOU SELECT SPEED OR FORCE

Optional *speed* and *force* ranges are available in the digging cycle. That means you can cut through easy digging with maximum speed — or use the optional, higher-range force action (with slower speed) to dig through frozen ground, tough clay, coral, etc.

NEW PUSH-BUTTON SELECTOR VALVES STEER POWER WHERE IT'S NEEDED

Selector valve buttons on the control levers let you concentrate horsepower where you need it when you want it. Operator can double the speed of any motion at the touch of a button.

NEW COMBINATION OF RAM FORCES EXCEEDS 90 TONS

189,000 pounds of ram force combined in crowd-down, dig, and wrist actions. Combination of wrist action and telescoping boom provides more favorable dumping ranges (and cleaner dumps) both in tight and at maximum reaches.

PLUS ALL THESE FEATURES

Specialized boom telescope action — four hydraulic outriggers — low-cost carrier — up to 50 mph on open roads — all-hydraulic controls — short tail swing — four sizes of dippers. 245H58

BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

See your Bucyrus-Erie distributor or send coupon for full details about the new ½-yd. H-5 Hydrohoe-Hydroshovel — tops for high-speed digging . . . big production digging . . . tricky digging.

BUCYRUS-ERIE CO., South Milwaukee, Wisconsin
Gentlemen:
Please send me complete details on the new H-5 Hydrohoe ☐
Name
Company
Address
City State
245H58

KERN
GETS YOU OUT
(of traffic and crowded areas)
IN A HURRY

TURN TO
KERN INSTRUMENTS
for increased working speed, simplicity and economy of operation, higher degree of accuracy.

45 SEC. SET-UP TIME with
KERN GKI LEVEL
and KERN (Ball & Socket) TRIPOD

- Unique new design—no leveling screws.
- Compact, functional, highly portable.
- Fast, effortless operation.
- Fine tilt screw; coincidence spirit level.
- Mean accuracy as high as 13/1000 ft. per mile.

$251.50 GKI LEVEL
Including Fixed Leg Tripod

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REVOLUTIONARY NEW TRIPOD
Levels instrument with remarkable speed. Assures exceptional stability with ball-and-socket head supporting instrument coupling.

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Write for Brochure GK 479-10
PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL

Kern SWISS
The FINEST in SURVEYING EQUIPMENT
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

Purchasing News

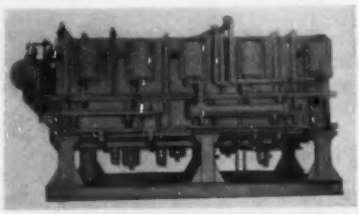
rate is approximately 72 times per minute. The lamp comes with either red or amber optical plastic lens; the battery case is available in yellow enamel.

Equipped with a bracket to fasten to a barricade, the Big Beam Transista Safety Light can be used with all-steel folding barricades, channel-type mounts and locking devices. For additional details, write U-C-LITE MFG. CO., 1050 W. HUBBARD ST., CHICAGO 22, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 860.

Fresh Water from the Sea at $1.02 per 1,000 Gallons

Seacoast municipalities short of water can augment their dwindling supplies at $1.02 per thousand gallons, according to Fred Loebel, CLEAVER-BROOKS CO., 326 EAST KEEFE AVE., MILWAUKEE, WIS. This company has constructed over 1,000 plants for land and marine uses to convert sea water and brackish water to fresh during the past decade. Taken the world over, this type of installation will provide about 12 million gallons of water daily. This represents a 12-fold increase in ten years.

The $1.02 price quoted represents all



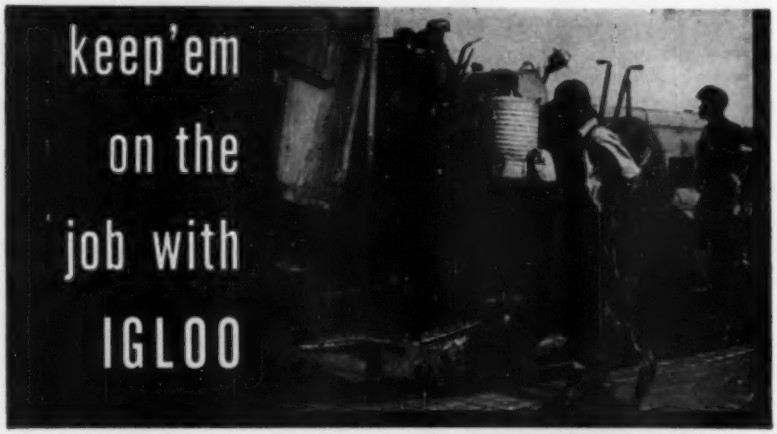
A typical 5-stage Cleaver-Brooks flash-type evaporator.

the costs involved in operating a plant able to deliver a million gallons daily. The plant would be a multistage flash evaporation plant, heated by steam at atmospheric pressure from a 6,000-kw extraction-condensing turbine, using fuel costing 8½ cents per gallon. The price would finance transportation, erection, water storage, interest on capital, engineering, site and contingencies.

The multistage flash evaporation plant has the advantage of operating without scaling and feed treatment. It uses low-level heat source and has a reasonable first cost.

For additional information, write the company, or you may use the Post Card on the insert following Page 52. Circle No. 835.

keep'em on the job with IGLOO



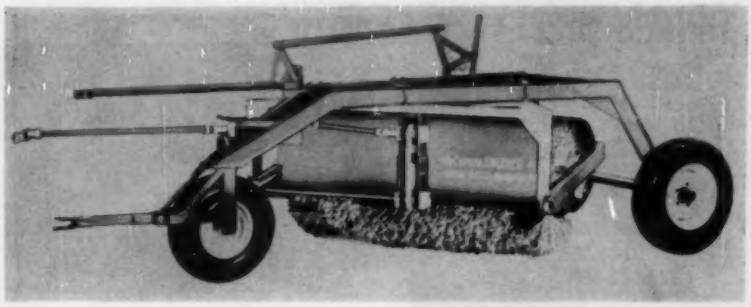
—on the spot cool water pays off on the resurfacing job at the Houston International Airport

More men on the job more of the time is the result of adding IGLOO water coolers on your construction jobs. Workers like IGLOO best because—
• It's CRYSTALINED, keeps liquids pure • It has a round sanitary bottom, easy to clean • It has a recessed dripless spigot • Its insulation qualities are 18% greater • It's stronger, stays around longer

keep 'em on the job with IGLOO

ask for it by name
IGLOO CORPORATION
P O BOX 8227 · MEMPHIS 4 TENN

All-Purpose Street Sweeper



Street cleaning crews should appreciate the Carson Street-King, an all-purpose sweeper that can be used with any make or size tractor, truck or jeep with power take-off. Of all-steel construction, the rugged sweeper is attached by a simple pin and drawbar connection. With it, fast, easy hookup and detaching are assured.

The sweeper's broom is mounted on a 35-degree angle with the front wheel axle and sweeps a path 5½ feet wide. It can be floated or manually raised and lowered in motion for different sweeping levels. The wooden brush core comes filled with either palm or steel fiber and can be reversed end for end for even wear. Tires and tubes are standard equipment.

The Carson Street-King effectively sweeps alleys, streets, airport runways, and parking lots, and can be used in street construction and asphalt paving preparation. Additional information is available from CARSON MFG. CO., P. O. BOX 256, MARYVILLE, MO., or you may use the Post Card on the insert following Page 52. Circle No. 822.

New Location for Audio Equipment

AUDIO EQUIPMENT COMPANY, INC. has moved from Great Neck, N. Y., to a new, fully-equipped plant at 75 HARBOR ROAD, PORT WASHINGTON, N. Y. The new quarters will permit the company to double its capacity. Audio manufactures Audio Hailer electronic megaphones, which are widely used in municipal administration by fire, police, park and recreation and public works departments, as well as in school systems. It is soon to release a transistor-powered model.

Huber-Warco Adds 4-6 Ton Tandem Roller to Its Line

Latest addition to the Huber-Warco tandem line is a 4-6 ton retractable wheel roller that offers a high degree of portability and requires only three simple steps to convert from working to transport position. Its retractable wheels and towing hitch are operated by a power hydraulic system, and it features a tail-shaft governor, combined with a torque converter and water-cooled engine.

It is pointed out that because of balanced weight design, only 1,280 pounds ride on the towing vehicle. From 17% to 21% less weight on the hitch is said to result in better towing action at higher speeds.

Other features of the 4-6 ton tandem

M&M BEAVER

AMERICA'S NO. 1 BRUSH CHIPPER

Cuts Brush Haulaway Costs

No longer is it necessary to wonder what to do with useless brush and branches and the high cost involved in hauling them away. The new M & M Beaver, America's No. 1 Brush Chipper, converts this useless brush, branches, and limbs up to 6" in diameter into wood chips that can be used for mulch, flower beds, fuels, and many other purposes. If the quantities are large enough, paper mills and chemical factories are interested in buying these chips.

For over 100 years MITTS & MERRILL has been manufacturing machinery, wood hogs and brush chippers for the sawmill and lumber industries. The over 100 years of know-how and engineering information thus accumulated is built into the new M & M Beaver which we call America's No. 1 Brush Chipper.

The new M & M Brush Chipper is mounted independently on a well-built steel frame welded trailer so that it can be hauled through rugged terrain such as highways, ditches, fields, and forest clearings. The units are also available independently and can be mounted on trucks or tractors (truck installation shown here).

Cutting is done with 12 small staggered knives equally spaced every 45 degrees over a rotary cylinder. Thus each knife has a smaller impact on machinery, clutches, etc. than machines which have four large knives—90 degree spaced—completely across the cylinder. All moving parts are well guarded for safety yet easy to get to when adjustments are necessary.

If you are interested in the finest machine, the machine designed right and built right and the machine that saves you money, then you will prefer the M & M Beaver, America's No. 1 Brush Chipper. Write today for complete information.

M&M

100

MITTS & MERRILL • (1003 So. Water Street) • **SAGINAW, MICHIGAN**

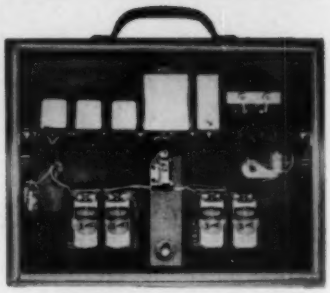
GOLDAK'S 25th ANNIVERSARY PRIZE WINNING

TRANSISTORIZED PIPE LOCATOR

"Signalmaster"

MODEL TR-1

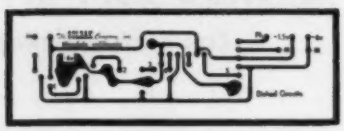
THE MOST EFFECTIVE PIPE LOCATOR OF THE CENTURY



SPECIFICATIONS:

Operating Weight
Transmitter — 4½ lbs.
Receiver — 4¾ lbs.
Circuit
Transmitter — one transistor
Receiver — six transistors
Batteries
Transmitter — 4 size C flashlight cells
Receiver — 4 size C flashlight cells
Sensitivity — 18 ft. depth range, approximately 200 ft. average tracing distance.

Again, Goldak proves their leadership in the locating field with this Transistorized Pipe Locator. Featuring Transistors, Printed Circuit Boards and Packaged Circuits for better locating; small sized Flashlight Batteries for maintenance savings...Transistors and other components encapsulated preventing temperature, humidity, shock, vibration problems. Designed for pinpoint detection of underground pipes, cables, mains, laterals, valves, etc.



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For further information, write The Goldak Company for Literature and name of your nearest dealer.

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Huber-Warco's 4-6 ton tandem roller.

roller include a foot-operated disc-type brake located on the transmission output shaft, variable speed steering valves, 34-inch diameter roll, and easily removed kingpin housing for replacement. For additional information, write HUBER-WARCO CO., DEPT. 5-AC, MARION, OHIO, or you may use the Post Card on the insert following Page 52. Circle No. 841.

Aerial Ladder for Commercial Chassis

GMC chassis with 232 bhp V-8 engine and 65-foot American LaFrance aerial ladder.

This 65-foot aerial ladder mounts on commercial chassis with GVW rating of 25,000 pounds and has the same operational system as custom-built aerials. It allows the buyer to select the make of commercial chassis.

Standard mechanical, quick-acting type, ground packs, having the widest center-to-center measurements in the industry (145 inches), enable the ladder to be run out full length from either side of the chassis. In this position, the end of the ladder will support the weight of one fireman.

Parts and service are available from American LaFrance. For additional information on the C-65 aerial ladder, write AMERICAN LAFRANCE CORP., ELMIRA, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 827.

3-5 Ton Portable Roller

The Model 160, 3- to 5-ton portable roller leads the Littleford line of rollers. Power steering is in operation at all times and is done with an automotive-type steering wheel, rather than a steering lever. The clutch is located outside, for easy adjustment.

Portability is achieved with a pair of rubber-tired trailing wheels, which are hydraulically lifted 5 inches above the rolling surface when the roller is in operation. These wheels may be removed from the roller to permit the closest possible rolling next to buildings, curbs and other obstructions.

For additional information, write LITTLEFORD BROS., INC., 500 E. PEARL ST., CINCINNATI 2, OHIO (ask for Bulletin GG-32), or you may use the Post Card on the insert following Page 52. Circle No. 859.

Pipe Lifter for Concrete Pipe

Pipe handling at the plant, in storage yards and on the job site is simplified and accelerated when a Cady Pipe Lifter is employed. This all-welded standard lifter, de-

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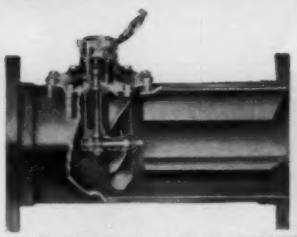

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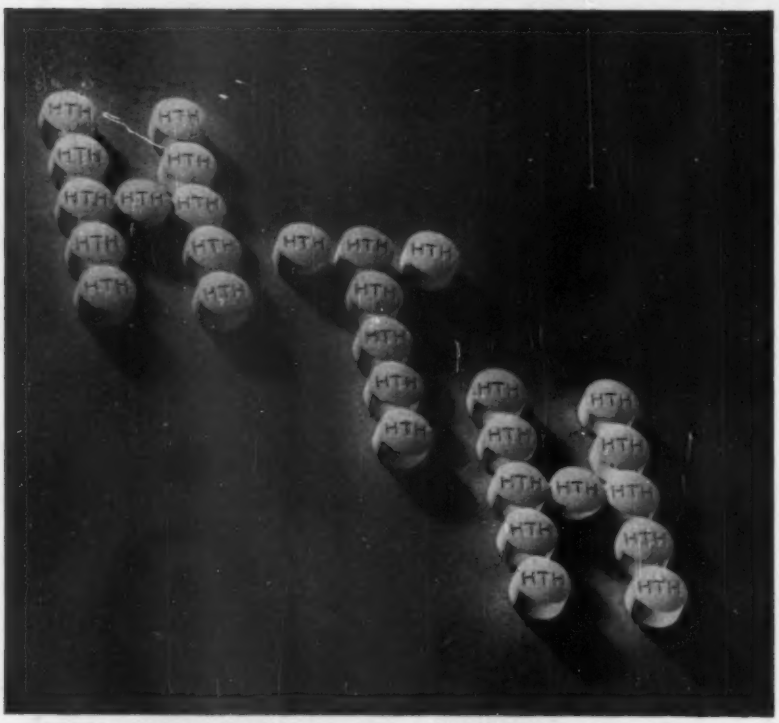
signed for hauling all types of concrete pipe in 4-foot lengths, can handle both T&G and B&S pipe up to and including 36 inches in diameter.

The pipe lifter hooks into the pipe instantly, and the pipe hangs level when hoisted. Loading, unloading, transportation and positioning is done quickly and easily. The lifter has a 2,250-pound hook capacity; with it every crane and hoist becomes an aerial hoist at low cost.

Weight of the lifting unit is 62 pounds It is portable and has a high-strength alloy steel frame. It comes equipped with a carrying handle as well as a guide handle. Standard finish is safety yellow. The lift lug on the unit has a 1¼-inch hole for shackle.

Complete information and a specification sheet, No. 1257, is available from CADY METAL FABRICATING CO., NORTH TONAWANDA, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 858.



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5557-A

Truck Ladder for Utility Crews

Traffic light, power and telephone maintenance and utility crews will find the new Truco hydraulic-electric truck ladder extremely useful. Its fiberglas upper section gives it superior insulating values, as well as lightness, stability and strength. Platform heights are from 28 feet up. Electric power operation is standard, but power takeoff or independent gasoline-engine power are both available.

Rugged and lightweight, the Truco ladder mounts neatly on any standard service or utility truck body, and stows low and short. For full details, write TRUCK EQUIPMENT CO., 3961 WALNUT ST., DENVER, COLO., or you may use the Post Card on the insert following Page 52. Circle No. 838.

Allis-Chalmers' Stevenson Confident in Our Economic Future

At the annual meeting of shareowners, R. S. Stevenson, president of ALLIS-CHALMERS MFG. CO., Milwaukee, Wis., reiterated his confidence in the economic future of the nation and his own company.

After citing some of the country's major industries, Mr. Stevenson said that "Allis-Chalmers is a primary and important producer for every one of these industries that are a part of America's growth pattern." He felt that the electric light and power industry will double its capacity in the next ten years, and that the present highway program falls short of our requirements and that highway plans and their building can only go one way—"up." As for the

cement industry and primary metal producers, Mr. Stevenson stated that "even though their present facilities are not fully employed, they do not have enough really efficient capacity for the needs of the future."

Speaking of current business conditions, Mr. Stevenson regarded the situation as only a "dip", and stated that "in spite of the problems that inflation has caused this nation, we have been growing solidly, and once we catch our breath, the growth will continue."

Two-Way Portable Transistorized Receiver

A completely transistorized hand-carried transmitter-receiver has been designed by G-E especially for municipal emergency services, such as police and fire departments and civil defense.

The sensitivity of this unit is particularly important in remote areas where communications reception normally is poor, as in locations inaccessible to radio-equipped vehicles. In standing by to receive a message, it drains less power than a flashlight. It is supplied with large industrial-type batteries as standard equipment. For the rest of the story, write GENERAL ELECTRIC CO., DEPT. 168, ELECTRONICS PARK, SYRACUSE, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 836.

Carlon Acquires Firm in New England; Elects New Vice President

Plastic Industrial Products Company of Somerville, Mass. has begun production on the complete line of plastic pipe produced by CARLON PRODUCTS CORP., CLEVELAND, OHIO, which includes flexible polyethylene, rigid Kralastic, PVC, and a new plastic sewer and drain pipe. In addition, it will continue to make custom extrusions, flexible vinyl tubing, welting, spline and window channeling.

The Somerville firm is the first flexible pipe manufacturer in the New England area. It was recently acquired by Carlon, the world's largest maker of plastic pipe, to enable that corporation to better service the New England area. It will operate under Carlon's Custom Extrusion Division, headed by James Cleminshaw. John Beaumont, former president of Plastic Industrial Products, will remain as General Manager of the plant.

Additional news from William Abramowitz, president of Carlon, is that John L. Rudge, who has been with Carlon for over ten years and was one of the pioneers in plastic pipe for well, farm and industrial use in the United States, has been elected a vice president of Carlon responsible for the Southeastern District. Headquarters for Mr. Rudge will be Asheville, N. C.

Custom-Built Pipe Pusher

The Henry Ram-A-Rod, a pipe pusher that will push or pull ¾-inch to 3-inch pipe or tubing, has been especially designed for the Henry Hydraulic Backhoe, and replaces the bucket on the backhoe. The pipe pusher is held in fixed position by the Henry hydraulic system and ground-rooted mainframe; the bucket

Why mar your streets with costly, needless patches?

A little of your budget money is far better invested in a GREENLEE Hydraulic Pipe Pusher than another needless street repair job! Teamed with a portable power pump or operated by hand, this GREENLEE tool pushes pipe under streets, walks, elevations, eliminates extensive ditching and repairs, quickly pays for itself. Model shown pushes 3/4" - 4" pipe. Second model available for larger pipe and concrete sewer. Write for literature.

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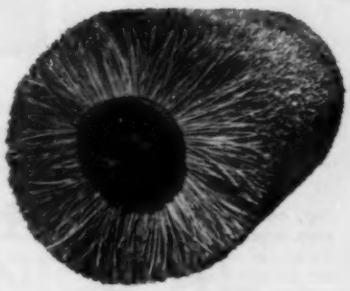

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STREET SWEEPER BROOMS

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Western Parking Gate in combination with hourly rated "Parkontrol" Time-Dater-Imprinter Equipment.

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EXCLUSIVE FEATURES—Western, builder of more than 12,000 railroad and highway crossing gates, has engineered the "Lot Full" sign, electric opening and closing treadles, double key controls for night and day parking, electro-cards with period changes, push-button remote controls and automatic counters.

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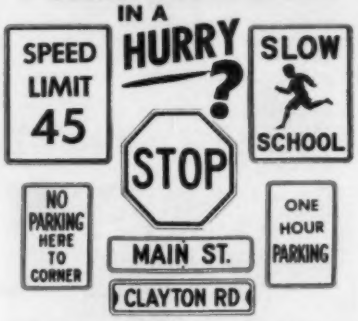

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cylinder provides the actuating power.

A small, self-contained unit, the Henry pipe pusher has a 6-inch driving stroke, and will deliver approximately 30 tons of pressure on the push pipe. Stability of the backhoe contributes to the accuracy of the Ram-A-Rod, which requires a relatively small operating and target trench (approximately 4 inches longer than pipe sections used).

The Henry Ram-A-Rod pipe pusher.

Only one man is needed to dig the trenches, replace the bucket with the pipe pusher and handle the entire pushing job. The Ram-A-Rod reverses directions instantly, and is able to pull pipe out quickly if a major obstruction is encountered. The unit can push through sand, rocky or clay soil, and is said to have pushed through 100 feet of ¾-inch pipe without strain. It can be used to drive pipe or service lines under streets, sidewalks, lawns and roads with dead-eye accuracy.

There are only 17 parts to the Ram-A-Rod, which is practically maintenance free. Its small size—53 inches in length, 14 inches in width—makes it easy to transport.

For further details, write to HENRY MFG. CO., INC., 1700 N. CLAY ST., TOPEKA, KANS., or you may use the Post Card on the insert following Page 52. Circle No. 857.

Asplundh Chipper Co. Appointed Distributor for Emhart

Emhart Manufacturing Company, Skyworker Division, Milford, Conn., manufacturers of hydraulic aerial lifts, has appointed the Asplundh Chipper Company, Jenkintown, Pa., as a national distributor.

Asplundh will sell and service the Skyworker Tree King, Lamp King, Tele King,

4100 and "65" models to the tree-trimming industry, utilities, and the governments of municipalities, counties and states. Skyworker will continue to sell directly to the general industrial, federal government and defense markets.

The Asplundh organization, which was founded in 1928, has 4,000 employees engaged in line clearance, and in the manufacture and distribution of the Asplundh Chipper for brush disposal, brush saws, and specialized machinery. Orrin B. Maxwell, vice president in charge of sales of the Asplundh Chipper Company, will handle all sales and service operations. Mr. Maxwell was formerly general sales manager for Skyworker.

Sprayer Eliminates Weeds and Brush

To help combat roadside weeds and brush, John Bean has developed its Model 20-HW highway sprayer. Its large-capacity tank—1,000 gallons—will keep stops for water refilling at a minimum, and so allow more miles of roadside to be sprayed from each tank load. The unit delivers up to 20 gallons of spray per minute.

Heart of the new sprayer is a fully-enclosed Royal 20 pump, which has adjustable pressure from 50 to 750 psi. A special suction line running from each end of the tank to the pump permits the latter to draw liquid from the tank, regardless of the grade on which the Model 20-HW truck may be mounted or may be operating. A gauge indicates the amount of spray material left in the tank.

The 1,000-gallon tank is refilled with an injector-type refiller, available at extra cost. The adjustable gun is hand-directed, and permits uniform coverage of the roadside at travel speeds from roughly 5 to 10 mph.

The Model 20-HW is 60 inches wide, 48 inches high and 134 inches long. It can be mounted on any standard wheel base truck or in the dump body of conventional highway department trucks. For additional information, write JOHN BEAN DIVISION, FOOD MACHINERY & CHEMICAL CORP., LANSING 4, MICH., or you may use the Post Card on the insert following Page 52. Circle No. 837.

One-Man Operated Vibratory Compactor

With the introduction of a self-propelled, one-man operated vibratory compactor (available in two sizes), the Master Vibrator Co. enters into production of a new line.

The smaller, portable unit is the Master C-12, which is powered by a Wisconsin ACN engine developing 3.5 hp, and has a compacting force of 2,300 one-ton blows per minute. This light-weight unit (236 pounds) is equipped with semi-pneumatic wheels and has a forward speed of 20 to 45 feet per minute. It can be used with shoes in sizes of 12, 18, and 24 inches, or with special water plate which prevents asphalt from sticking to the bottom of the shoe.

The Master C-36 weighs 435 pounds. It has a Wisconsin BKN engine developing 4.2 hp, and a forward speed of 20 to 70 feet per minute. Delivering a compacting force of 2,300 one and one-half ton blows

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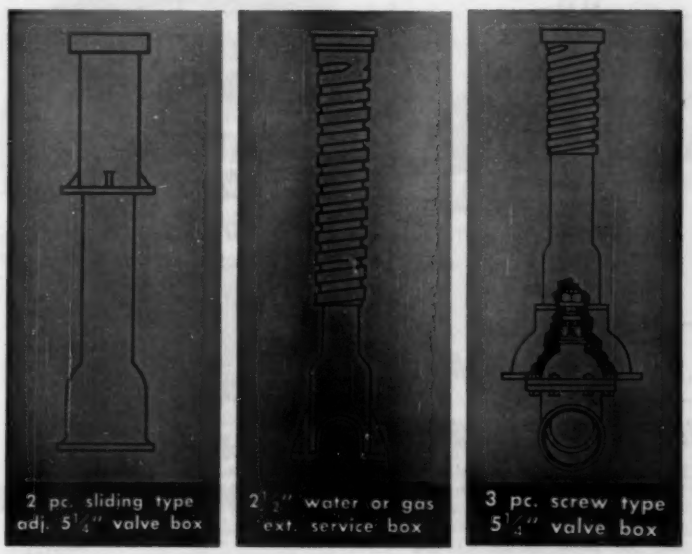
No matter what size, shape or style municipal casting you may desire — you're practically sure to find a "Buffalo" casting to serve your needs. Or, where desired, castings may be made to your own specifications. Whether you need valve, service or roadway boxes, meter boxes, manhole rings and covers or other municipal castings, you'll find all "Buffalo" castings designed for service and dependability.



Prompt quotations given on all your standard or special gray iron or non-ferrous castings.

Write or wire Dept. J for Bulletin M11.

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Purchasing News

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A Master Vibrator Co. self-propelled, one-man operated vibratory compactor.

per minute, it can be used with shoes in sizes of 24, 30 or 36 inches.

Both vibratory compactors are easy to maneuver. Each permits compacting against abutments, in trenches and in other working areas where space is limited, and can handle many soils, including most silts, sand, gravel, rock and hot or cold asphaltic mixes. It is pointed out that tests have shown these units to produce 90% to 100% standard or modified Proctor densities, meeting the most rigid requirements.

For additional information, write MASTER VIBRATOR CO., 1752 STANLEY AVE., DAYTON, OHIO, or you may use the Post Card on the insert following Page 52. Circle No. 832.

Napco and Ottawa Steel Associate

Napco Industries, Inc. has announced that Ottawa Steel, Ottawa, Kans., has been recognized as a Napco approved attachment manufacturer.

To date, Ottawa has designed two attachments specifically for the Napco Crab tractor—a ¾-yard front-end loader, Model SS-44, and a backhoe, Model LX-44, which digs 12½ feet deep. These two attachments, combined with the 4-wheel steer, 4-wheel drive features of the Crab, will permit the Crab to perform a variety of jobs.

The Ottawa attachments are available at all Napco dealers, who will mount them for purchasers. Complete specifications for the Napco Crab tractor may be obtained from NAPCO INDUSTRIES, INC., SEVENTH ST. NORTH LYNDALE, MINNEAPOLIS 11, MINN. Specifications for the Ottawa attachments may be had by writing to OTTAWA STEEL, OTTAWA, KANS., or if you prefer you may use the Post Card on the insert following Page 52. Circle No. 833.

Purchasing News

More Water from Your Wells

Lower inlet velocities, increased water intake, reduced pumping head and reduced drawdown are said to result from the 40% more openings in Layne's new improved 134 shutter screens.

Fabricated from one piece of cylindrical stock, these shutter screens are made in sections of 5 feet, and are delivered in 10-, 15-, and 20-foot field lengths. Minimum and maximum diameters are 6 inches and 48 inches, respectively, although larger sizes are also available. The screens come in a variety of materials, each having a specific immunity to particular corrosive agents.

Layne's improved 134 shutter screen

Louvers are made by die punching rows of openings in a cylindrical tube of required material. No material is removed from the cylinder. The louvers are pushed outward and upward, forming an arch. This type of construction is said to provide added strength as well as give protection to the openings during graveling and well development.

For additional information, write Layne & Bowler, Inc., Memphis 8, Tenn., or you may use the Post Card on the insert following Page 52. Circle No. 842.

Hough Strikes Out Against Recession

When a ten-mile long motor truck shipment of Payloader tractor-shovels representing more than one million dollars worth of earth-moving equipment arrived in Salt Lake City, Utah recently, it touched off a two-day, 11-state distributor demonstration program, the first of several programs of The Frank G. Hough Co., Libertyville, Ill., under the leadership of G. A. Gilbertson, president of the Frank G. Hough Co., and H. O. Bercher, executive vice-president of International Harvester.

The first day's meeting was given to

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UTILITY SERVICE BOXES

in minutes

Debris-clogged gas and water service boxes can be an expensive nuisance in an emergency. Perfectool eliminates the necessity for digging up the service box. This strongly made hand tool acts as a miniature two-jawed clam shell bucket. Depressing the spring handle opens the heavy bronze spoon-shaped jaws for the pick-up. Relax spring pressure and the jaws close on their load of debris.

The Perfectool comes in two sizes. *Standard* for service boxes 2" to 4" diameter; *Type-M* for boxes 1¼" to 2" diam., up to 6 feet deep. Longer handles $1.00 per added foot.

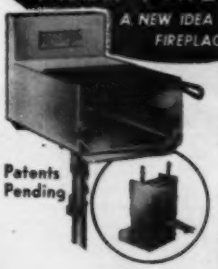
Write for descriptive folder. Better still, order a Perfectool today on 30-day trial with return privilege. Price $32.50, F.O.B. shipping point.

Perfectool Company

4611 N. Clark St. Chicago 40, Ill.

KAY PEDESTAL PARK FIREPLACE

A NEW IDEA IN PARK FIREPLACES



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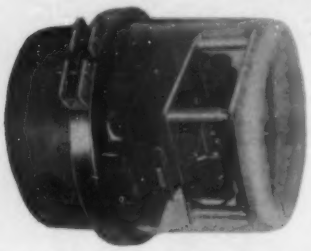
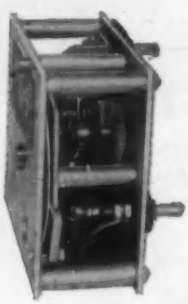
TIME-O-MATIC FLASHERS

Jack Mounted

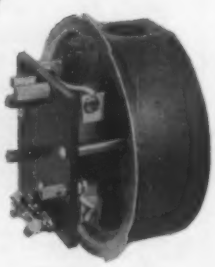


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC CONTROLS

•

TIME-O-MATIC, INC.

P. O. Box 850
1108 Bahls Street
Danville, Illinois, U. S. A.

Frank G. Hough Co. executives, distributors and guests at Salt Lake City, terminal point of "Payload Convoy West" caravan. In the front row (left to right) are: T. F. Flood and M. J. Weber, vice presidents; G. A. Gilbertson, president; H. O. Bercher, executive vice president, International Harvester; H. R. Brown, regional manager, western region; R. L. Beyerstedt, executive vice president.

preliminaries and was climaxed by a reception followed by a banquet attended by numerous municipal, state, manufacturing and industrial officials from various associations and companies, as well as by the executives of 23 distributor organizations.

The second day was devoted to on-the-job demonstrations with the new Payloader rubber-tired and crawler-mounted tractor-shovels and competitive machines of both types. Operations featured above- and below-grade digging, stockpiling, truck loading, trenching with backhoe attachment and pipe laying with sideboom attachment for rubber-tired Payloader units.

Demonstrations were attended by about 150 distributor personnel and their guests. The machines had, in most part, been sold to customers before the convoy left the Hough plant at Libertyville, and it was expected that the rest would be disposed of before the equipment reached the final distributor destinations.

City Manager Borland Wins Award

The GOLDAK COMPANY, 1544 W. Glenn Oaks Blvd., Glendale, Calif., which recently ran a series of advertisements featuring a "Name the Locator" contest for their new transistorized pipe locator, has announced the winner. He is Robert E. Borland, city manager of Silverton, Ore.

Mr. Borland, who has been employed in

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- Filter Plants • Tanks
- Sewage Disposal Plants
- Stadiums • Bridges
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Liberty Life Bldg. CHARLOTTE, N. C.
33 N. LaSalle Street CHICAGO, ILL.
193 Emmet Street NEWARK 5, N. J.

R. E. Borland

municipal work for over twenty-four years, has been with the City of Silverton, Ore. for over thirteen years. He is a member of the American Water Works Association, the International City Managers' Association, the Northwest City Managers Association, and the Professional Engineers of Oregon. Mr. Borland's winning name for the new Goldak Model TR-1 transistorized pipe locator is "Signalmaster."

Father of Open Steel Flooring Industry Dies

W. E. Irving

The man who is recognized as "father" of the open steel flooring industry is dead at the age of 85. Walter E. Irving, founder and president of IRVING SUBWAY GRATING CO., INC., Long Island City, N. Y., had been active head of the concern he founded 56 years ago until he became ill in January of last year. He is noted particularly for having invented the now fa-

TURCO

MAXI-POWER Sewer Cleaning Unit

Note the STIFF LEGS—HYDRAULIC—quickly adjustable to compensate for uneven ground.

Sewer Cleaning Brushes, Buckets, Ferrets, Flushing Bags, Rods, carried in stock for immediate delivery

ONE unit consists of:

TWO machines, located at the ends of the sewer section to be cleaned.

TWO models (501 and 502) each with 3-speed transmission, enable you to get the exact power and line speed you need:

	1st gear	2d gear	3d gear
#501	11000 lbs.	9000 lbs.	7000 lbs.
#502	15000 lbs.	12000 lbs.	9000 lbs.

FOUR facts to consider:

1. There's a unit exactly right for any city, from the largest to the smallest.
2. Performance is easy, quick, thorough.
3. The original full flow of the sewer is restored.
4. Each part is designed and engineered for long life.

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Division of

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Joseph F. Duddy, Gen. Mgr.

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Trench covers of 75% open Irving metal grating remain safe because they will not collect these substances. In addition to providing drainage and traction, grating sections can be easily removed for access to trenches.

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Purchasing News

miliar open mesh sidewalk grating in 1906 for New York City's early subway system. The grating in use previously was rattly, of primitive design, and unsuitable for flooring.

Mr. Irving is also credited with the development of the first practical emergency airfield landing mats a full year before Pearl Harbor. This development is credited in large measure for our success in providing quick air cover for invasion troops. Other "firsts" developed by Mr. Irving's company under his aegis were: open steel mesh flooring for bridges, surface armor for heavy-duty industrial floors, grating for use on ships and for running boards on railroad cars.

For his contributions to the field, Mr. Irving was the recipient of a number of awards. For his landing mat development, he won a Certificate of Appreciation for Patriotic Civilian Service from the Department of the Army. On March 11, 1952, the Open Steel Flooring Institute presented him with a scroll citing him as the founder of the grating industry.

New Headquarters for International Salt

INTERNATIONAL SALT CO., which has had its main office in SCRANTON, PA. since the company was founded in 1901, is to move its administrative headquarters from the business district of that city to the suburbs, according to an announcement by Edward L. Fuller, company president.

New site location will be in South Abington Township, where the company has purchased about 182 acres of land. (Ground breaking took place on May 15.) The proposed office building is to contain approximately 93,000 square feet of floor space and is scheduled for completion late in 1959. Cost is estimated at $1,700,000. In making this move, International Salt Co., producers of Sterling Salt Products, will provide ample room for present operations and a logical work flow, space for future expansion, and additional facilities for improved employee relations.

Crane Excavator Reduces Cost of Materials Handling

Bantam's Model CR-35 self-propelled crane excavator transports, stacks, loads, unloads and sorts materials. It works everywhere and handles all kinds of materials. It's not hampered by soft ground, and extreme cold weather conditions do not affect its operation. Job case histories show that it has reduced costs as much as 50%, boosting production at the same time.

High reach, 360-degree swing, and independent travel, forward and reverse, give the CR-35 a high degree of maneuverability. An all-weather cab provides the operator with full vision when traveling and when on the job. Capacity of this low-cost, responsive rig is 7 tons.

Highly versatile, the Bantam CR-35 converts for crane or other work with Bantam fast-change attachments. For job facts about its performance on materials handling applications, write for *Bulletin* #AB-158; for complete specifications, ask for *Bulletin* #CR-502. Address requests to Schield Bantam Company, Dept. AC-148, Waverly, Iowa, or you may use the Post Card on the insert following Page 52. Circle No. 843.

One-man operated, self-propelled Bantam CR-35 loads pipe onto a truck at the water department's yard at Jackson, Mich. It then followed the truck across town to the job site, to dig the trench, set the pipe, and backfill the completed job.

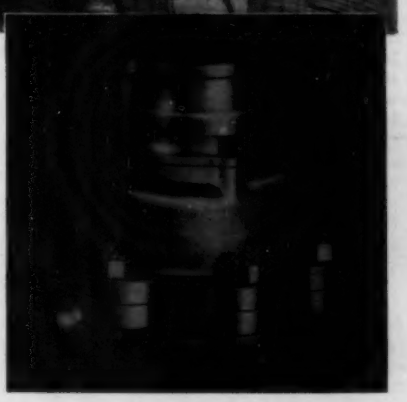
THE WATER SUPERINTENDENT

OVERSEER OF WATER WORKS OPERATIONS

He says, "Accurate American Meters discourage waste and thereby help us meet the peak seasonal demands on the water system!"

Most water waste is not willful — just forgetful — forgetting the hose is running, forgetting to shut a faucet tightly, forgetting to get a leaking faucet or toilet valve repaired. When American Meters are on the job, accurately registering such waste, forgetfulness disappears. Plumbing leaks are quickly repaired. With less waste, equipment is able to meet peak requirements at full pressure.

And superintendents who use American Meters, know that even after 30 or more years of service, they will still be silently, accurately, dependably earning water revenue in full. That's why they continue to buy AMERICAN.



The Meter with the thick disc that compels full accuracy.

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About People

The Board of Directors of the **J. I. Case Company**, Racine, Wis., has elected Marc B. Rojtman, formerly executive vice president, to the post of president.

M. B. Rojtman

Mr. Rojtman, age 40, and formerly president of American Tractor, came to Case through the merger of these companies in January 1957. Now, in addition to his former jurisdiction over sales, engineering and finance, he will assume the responsibility for manufacturing, although labor and industrial relations will be under John T. Brown, chairman of the Board of Directors.

A recent announcement by Mr. Rojtman in his new office, is that Don A. Beckenbaugh has been promoted to the newly created post of sales and manufacturing administrator. Mr. Beckenbaugh, who joined J. I. Case in Racine in 1928, has a broad background in practically every phase of the company's operations. In his new post, he reports directly to Mr. Rojtman and has full responsibility over the coordination of sales and production requirements of the company.

G. J. Manahan, general sales manager since 1945 of **The A. P. Smith Manufacturing Company** of East Orange, N. J., has been elected vice president of the company, according to an announcement by H. F. O'Brien, president of the company. Mr. Manahan joined the A. P. Smith organization in 1939 with a broad construction and marketing background in water and gas utility fields. Since his appointment as general sales manager, he has directed promotion and sales of the company's products to the water, sewage and gas industries. In his new capacity, he will continue to direct the company's sales activities.

G. J. Manahan

Word from **Dorr-Oliver Inc.** is that James B. Hoxie and Albert L. Morris have been elected vice president for production and vice president of company relations, respectively. Both newly elected officers of the company have been directors of their respective departments for a number of years. As vice president for production, Mr. Hoxie will continue overall administrative direction of the company's wholly owned manufacturing plants in Oakland, Calif. and Hazelton, Pa., and of equipment procurement from outside sources. Mr. Morris continues overall administration of Dorr-Oliver corporate, public and personnel relations.

Additional announcements from Dorr-Oliver include the election of William J. Fox as vice president for the field of Technological growth and the appointment of Dr. Elliot J. Roberts as company technical advisor. Creation of these two new top level posts are the first steps of a research and development reorganization and realignment brought about by recognition of the importance of research and development to the company's future.

A. L. Morris J. B. Hoxie

The Executive Committee of **Bell & Gossett Company** has announced the appointment of S. R. Schleicher as general manager of its Marlow Pumps Division. Mr. Schleicher joined Marlow in 1950 on a special engineering project and later became production manager. He retains the duties of this position and will now assume added responsibilities as general manager.

John S. Dietz, executive vice president of the **R. E. Dietz Company,** Syracuse, N. Y., manufacturers of lighting and safety equipment for vehicles, electronic flashers, highway torches and kerosene lanterns, has been named to the newly created post of general sales manager. Mr. Dietz will continue in his post of executive vice president, but in addition will supervise and coordinate the sales activities of the firm's two divisions, Automotive Lighting and Hazard Warning Lighting.

From **Crouse-Hinds Company,** Syracuse, N. Y., comes word that Robert J. Sloan has been elected president of the company. Mr. Sloan, who began his career with C-H in 1923, was elected secretary and a director in 1951, and in 1956 he became executive vice president. In his new capacity, he succeeds J. R. Tuttle, who continues as chairman of the Board of Directors of Crouse-Hinds, leading manufacturer of cast electrical conduit fittings and important force in the floodlighting, airport light and traffic control industries.

R. J. Sloan

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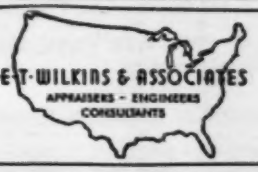

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Index to Advertisers

Abrams Aerial Survey Corp 217
Acme Visible Records, Inc 155
Aero Service Corp 61, 217
Air Survey Corp 217
Alabama Pipe Co 70
Alster & Associates, Inc 217
American Air Surveys, Inc 217
American Bitumuls & Asphalt Co. 47
American Marietta Co 170
American Pipe & Construction Co. 144
American Telephone & Telegraph Co 4
Amman, Photogrammetric Engineers, Jack 217
Ammann & Whitney 217
Anthracite Equipment Corp 80
Asplundh Chipper Co 119
Associated Surveys 217
Aurora Pump Div 138
Austin Western Works, Construction Eq. Div., Baldwin Lima-Hamilton Corp 63
Automatic Voting Machine Corp. 165
Autopoint Div., Cory Corp 39

B & B Engineering 218
Badger Meter Mfg. Co 49
Balke Engineers, Harry 218
Bathey Mfg. Co 70
Baughman Mfg. Co 72
Bean Div., John 163
Bell Telephone System 4
Beltz Engineering Laboratories 218
Bethlehem Steel Co 83
Bin-Dicator Co 119
Black & Veatch 218
Blaw-Knox Company 71
Borg-Warner Corp 146, 147
Brockway Weber & Brockway Engineers, Inc 218
Brown Engineering Co 218
Buchart Engineering Corp 218
Buck, Seifert & Jost 218
Buckner Mfg. Co., Inc 80
Bucyrus-Erie Co 201
Buffalo Meter Co 213
Buffalo Pipe & Foundry Corp 209
Burgess & Niple 218
Burke Playground Equipment Co., J. E 210
Burke, Inc., Ralph H 218
Burns & McDonnell 219
Burroughs Corp 188
Byron Jackson Pumps, Inc 146, 147

Cassion Wells, Inc 219
Carver Associates, Peter 219
Cast Iron Pipe Research Association 33, 33
Caterpillar Tractor Co 10, 230
Centriline Corp 40
Chastain & Associates, Homer L 219
Chevrolet Motor Div 31
Chicago Aerial Industries, Inc 219
Chicago Bridge & Iron Co 14
City Tank Corp 198
Clark Equipment Co 232
Clarkeson Engineering Co., Inc 219
Cleminshaw Co., J. M 219
Clow & Sons, James B 6
Cole & Son, Charles W 219
Cole-Layer-Trumble Co 76, 219
Colorado Fuel and Iron Corp., Wickwire Spencer Steel Div 183
Consoer, Townsend & Associates 219
Crouse-Hinds Co 120
Curtis Automotive Devices Inc 172
Cyclone Fence Dept., American Steel & Wire Div., United States Steel Corp 176

D'Amato & Associates, C. J 220
Damon & Foster 220
Darley & Co., W. S 146
Day & Zimmermann, Inc 220
De Leuw, Cather & Company 220
Dempster Brothers, Inc 152
Dietz Co., R. E 21
Dolge Co., C. B 72
Dorr-Oliver Inc 81
Douglas Mfg. Corp 72
Dual Parking Meter Co 131
Duncan Parking Meter Corp 134

Eagle Signal Corp 26
Econolite Corp 117
Edwards & Kelcey 220
Electrical Testing Laboratories, Inc 220
Electro Rust-Proofing Corp 30
Electronic Protection, Inc 139
Electronic Specialties Co 119
Enterprise Engine & Machinery Co. 62
Etnyre & Co., E. D 158
Everson Mfg. Corp 204, 220
Evinrude Motors 210
Ewin Engineering Corp 220
Expanding Sewer Machine Co 82

Fairbanks, Morse & Co 166
Fairchild Aerial Surveys, Inc 68, 221
FencePointeR Manufacturers 158
Fischer Research Laboratory, Inc. 154
Fitchburg Engineering Corp 196
Flexible, Inc 159
Flex-O-Lite Mfg. Corp 132
Flo-Pac Fibres, Inc 207
Flynn & Emrich Co 82
Ford, Bacon & Davis 221
Ford Motor Co 16
Franklin Worsted Co 78

Galion Iron Works & Mfg. Co 52
Game Time, Inc 208
Gamon-Meter Div., Worthington Corp 82
Gannett Fleming Corddry & Carpenter, Inc 221
Gar Wood Industries 168
General Electric Co 43
Gilbert Associates, Inc 221
Gokey, John J 221
Goldak Co 204
Good Roads Machinery Co 154, 178
Green Co., Edward R 221
Greenlee Tool Co 207
Greer Engineering Associates 221
Griffith, L. B 221
Grimm Stamp & Badge Co 208
Gunite Concrete & Construction Co 221

Hamilton-Kent Mfg. Co 150
Harley-Davidson Motor Co 12
Harris, Inc., Frederic R 221
Harris, Henry and Potter, Inc 222
Harza Engineering Co 222
Hays Mfg. Co 181
Hemco Engineers 222
Hersey Mfg. Co 57
Homelite Corp 184, 185
Hough Co., Frank G 75
Howard, Needles, Tammen & Bergendoff 222
Hunnicutt & Associates 222
Hurd Aerial Surveys, Inc., Mark 222
Hydro E-Z Pack Div., Hercules Galion Prod., Inc 174

Igloo Corp 202
Industrial Products, O'Cedar Div. of American Marietta Co. 70
International Aerial Mapping Co 222
Iowa Valve Co 162
Irving Subway Grating Co., Inc .. 214

Jacobs & Co., J. L 222
Johns-Manville 79

Katolight Corp 210
Kay Enterprises 211
Keasbey & Mattison Co 67
Kennedy, Clyde C 222
Kern Instruments, Inc 202
Keystone Mapping Co., Inc 222
Koehring Co 66
Kroeger & Associates, Louis J .. 223
Kulijian Corp 223

Lanterman, Engineers, W. G 223
Layne & Bowler, Inc 35
Lindsay Co., Inc., P. K 172
Line Material Industries 122
Lock Joint Pipe Co 29
Lockwood, Kessler & Bartlett, Inc 223
Ludlow Valve Mfg. Co., Inc 64

M-B Corp 59, 180
M & H Valve & Fitting Co 54
Mack Trucks, Inc 36, 37
Magee-Hale Park-O-Meter Co 127
Marion Power Shovel Co 55
Martin Co 145
Massey-Ferguson Inc 148
Maxim Silencer Co 175
McCabe & Associates, De Soto B. 233
McWane Cast Iron Pipe Co 28
Metcalf & Eddy 223
Mi-Co Meters 46

Mire-Flex Co., Inc 138
Mitts & Merrill 203
Moore's Time-Saving Equipment, Inc 179
Morrison-Maierle, Inc 223
Motorola Communications & Electronics, Inc 41
Muddeman & Assoc., John M ... 223
Mueller Co 45

National Cash Register Co 73
National Clay Pipe Mfrs., Inc 23
National Disinfectant Co 200
National Lead Co 19, 20
National Power Rodding Corp 224
Neenah Foundry Co 78
Neff Laboratories, Inc., J. W 128
Neptune Meter Co 84
Neteo Div., Clark-Wilcox Co 165
Nichols Engineering & Res. Corp. 171
Nordberg Mfg. Co 69
Northern Gravel Co 44
Norton, Kobbins & Associates ... 224
Nussbaumer-Clarke & Velzy, Inc. 224
Nutting Co., H. C 224

O'Brien Mfg. Co 9
Olin Mathieson Chemical Corp ... 206
Oliver Corp 140
Onan & Sons, Inc., D. W 182

Palmer & Baker, Inc 224
Parcos Div. of Johnson Fare Box Co 179
Parsons Co 66
Parsons, Brinckerhoff, Hall & Macdonald 224
Partridge Inn 172
Perfectool Company 211
Pfaff & Kendall 142
Pitometer Associates, Inc 224
Pittsburgher Hotel 213
Plibrico Co 74
Potts Associates, Clyde 224
Pressure Concrete Co 212
Prismo Safety Corp 24

Rader & Associates 224
Radiator Specialty Co 165
Raisch, William 225
Rayner Aerial Surveys 225
Recordak Corp 191
Revere Electric Mfg. Co 124
Riggs Nucleonics Co 58
Robert & Co., Associates 225
Rohn & Hoas Co 34
Rowco Mfg. Co 211
Russell & Axon 225
Rust-Oleum Corp 77

Sanborn Map Co 225
Sargent-Sowell 213
Schramm, Inc 186
Seay Co., Irby 225
Sealye Stevenson Value & Knecht 225
Servis, Van Doren & Hazard 225
Sherman Products, Inc 53
Shoup Voting Machine Co 51
Smith & Gillespie 225
Snyder, McLellan & Associates .. 226
Solvay Process Div., Allied Chemical & Dye Corp 42, 74
Southern Signals, Inc 65
Sparling Meter Co 205
Standard Steel Works, Inc 197
Stanley Engineering Co 226
Steinman, D. B 226
Stellwagen, Robert H 226
Stilson & Associates, Ltd., Alden E 226

Tarrant Mfg. Co 205
Tennessee Corp 204
Texas Co 2
Time-O-Matic, Inc 212
Toledo Pipe Laboratory 226
Turbine Sewer Machine Co 213

U-C Lite Mfg. Co 56
Unimasco, Inc 48
United Metal Cabinet Corp 177
Universal Road Planer Corp 154

Veon Chemical Corp 136
Vega Industries, Inc 194

Wainright & Ramsey, Inc 227
Wallace & Tiernan, Inc 30
Ward LaFrance Truck Corp 156
Washington Aluminum Co., Inc .. 76
Watkins, J. Stephen 227
Wausau Iron Works, Inc 80
Wayne Mfg. Co 137
Wedge-Lock Clay Pipe 23
Wegman Co., Leonard S 227
Weil Pump Co 153
Wenzlick & Co., Roy 227
Western Industries, Inc 208
Wheel Trueing Tool Co 178
White Diesel Engine Div 60
Wild Heerbrugg Instruments, Inc. 50
Wilkins & Associates, E. T 227
Williams Inspection Co., A. W 227
Wood Co., John 76
Worthington Mower Co 192
Wyco, International 154
Wylie Mfg. Co., Inc 146

Yale & Towne Mfg. Co 231

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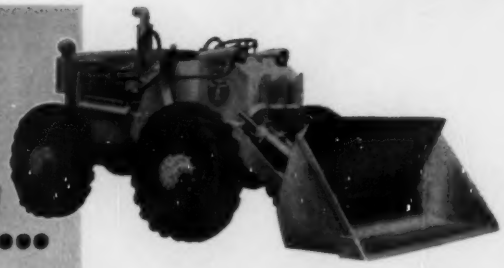

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